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Bay Area's Computer Magazine

FEB. 20, 1989 • 53

MicroTimes™

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*PC Magazine, January 12, 1988

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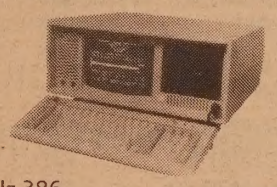

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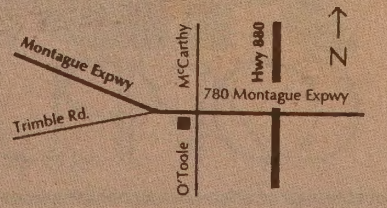

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Lowest Prices for MAC's, Compatibles & Printers In Silicon Valley-*San Jose Mercury News July 31, 1988*

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Lowest Prices for Mac's, Compatibles & Printers In Silicon Valley

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FEBRUARY 20, 1989 ISSUE #53

MICROTIMES™

computer viruses + a special report

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56 Viruses: The Long View
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Four predictions on the future of viruses and their effect on the industry.

60 Security Buyers Guide
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Correction

The photos of Doug Engelbart which appeared in our January issue were taken by Matt Herron. The credit "Copyright © 1989 by Matt Herron" was inadvertently omitted. We apologize to Mr. Herron and to our readers for this omission and for any misunderstanding or inconvenience it caused.

—MicroTimes editors

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No frills, no thrills, just a business accounting package that does what it's supposed to.

Mac-PC Connectivity *By Robert Beauchamp* **112**
FoxBASE+ sets a high standard for Mac to PC connectivity.

BMUG *By David Morgenstern* **116**
On Macworld, bimbos, and those darn viruses, computer and otherwise.

HyperCard *By Birrell Walsh* **120**
The Macworld Expo brings us a hyperhistory lesson, SQL with a *HyperCard* interface, and a couple of other applications for this adaptable software.

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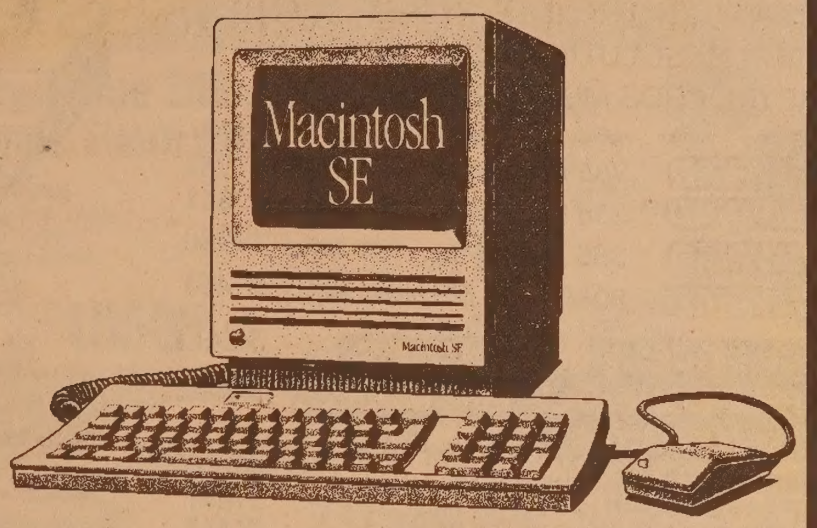

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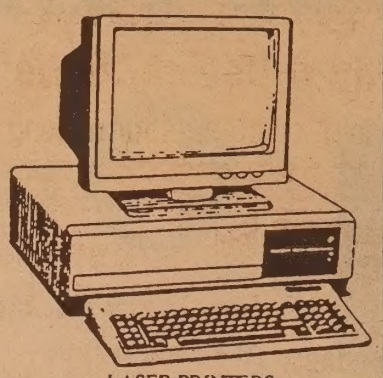

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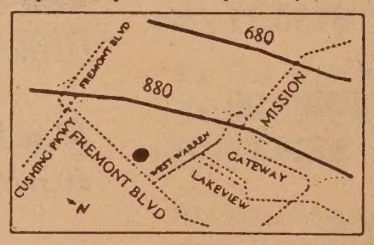

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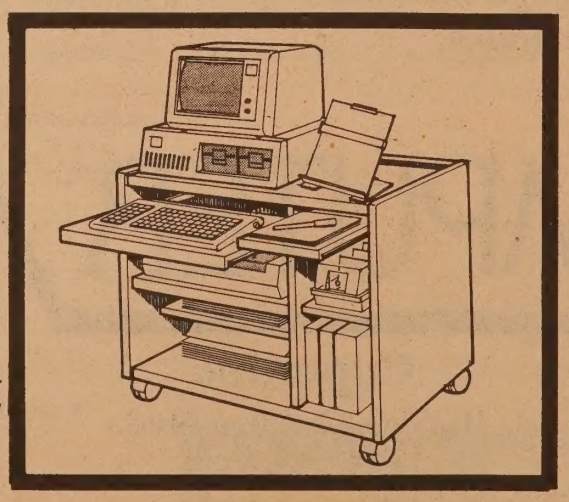

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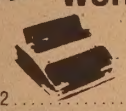

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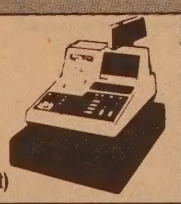

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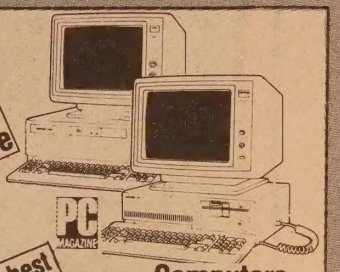

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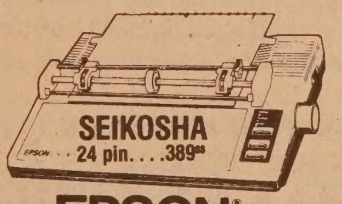

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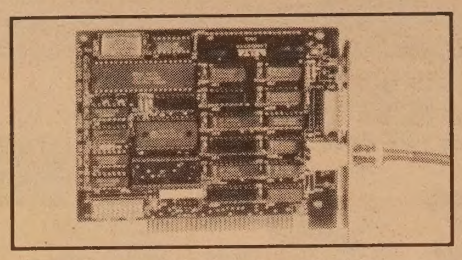

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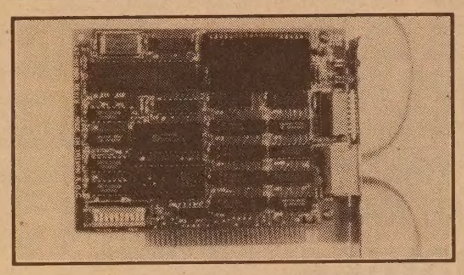

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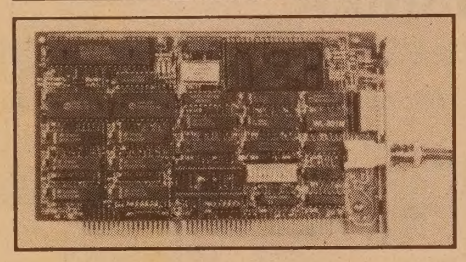

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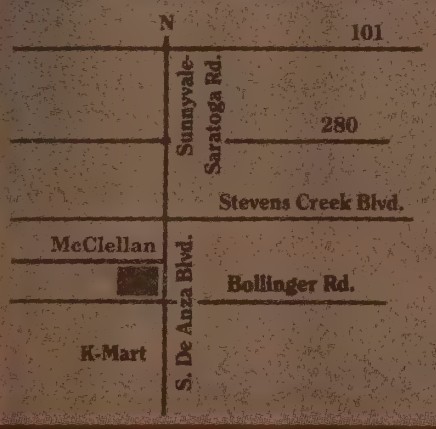

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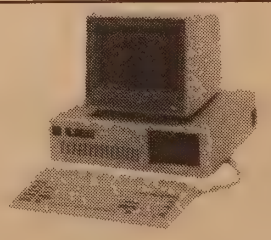

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February 27 PageMaker—An Overview. San Francisco, Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671.

February 27–March 3 IEEE Computer Society COMPCON Spring '89. San Francisco. The Computer Society of the IEEE. Call: (202) 371-1013.

February 28 Introduction To Illustrator 88 Class. San Francisco, Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671.

February 28 PageMaker I Class. San Francisco, Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671.

February 28-March 3 Systems Engineering For Integrated Hardware/Software Applications Course. San Francisco Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

March 1 HyperCard III Class. San Francisco, Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671.

March 1 ProTel Job Fair. Mountain View. ProTel. Call: (415) 964-4456.

March 1 Computers In Music Presentation. San Francisco. Association For Women In Computing. Call: (415) 655-3110.

March 1 HyperCard III Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 2 Seeing C From The Beginning Seminar. San Francisco. SFSU. Call: (415) 338-1205.

March 2 Basic Macintosh Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 3 Desktop Publishing With PageMaker On PC: Advanced Techniques Seminar. San Francisco. SFSU. Call: (415) 338-1205.

March 4 LAN Essentials: Installation & Configuration Class. Oakland. DATAssociates. Call: (415) 465-9083.

March 4–5 Computer Show And Sale. Oakland. East-West Computer Shows. Call: (415) 388-8893.

March 4 How To Build Your Own XT Or AT Clone Computer For As Little As $600 Seminar. San Francisco. SFSU. Call: (415) 338-1205.

March 4 Shop Till Ya Drop Computer Swap. San Francisco. Microshows. Call: 1-800-433-7469.

March 6–9 Folio:West—The 1989 Publishing Conference. Los Angeles. Hanson Publishing Group. Call: (203) 358-9900.

March 6 Using Lotus 1-2-3 Seminar. San Francisco. SFSU. Call: (415) 338-1205.

March 6 Basic Macintosh Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

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	SI(4.0)	Landmark
UNIQ/286-12/0 (ET)	13.6x	16.0 MHz

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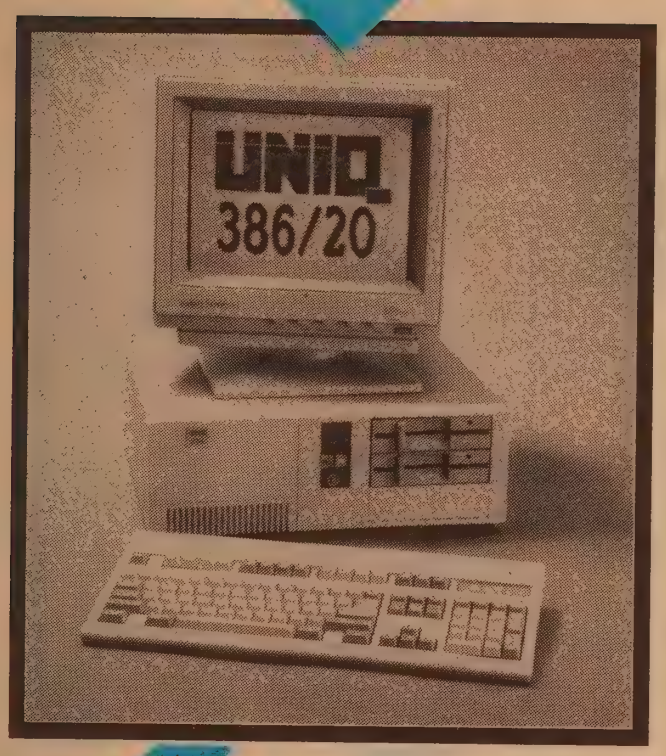

	SI(4.0)	*Landmark*
UNIQ/386-20/0 (EP)	23.0x	26.4 MHz

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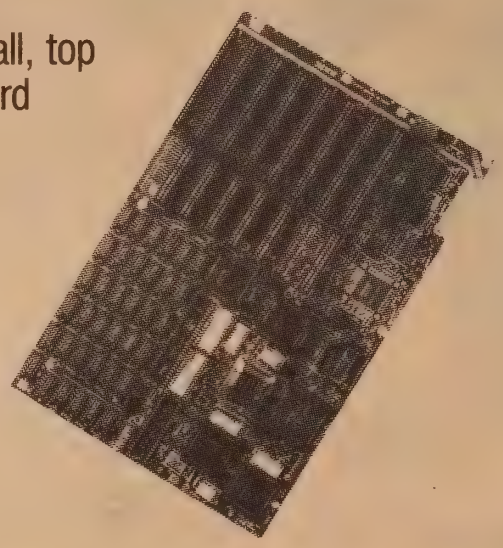

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March 7 PageMaker I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 7 Introduction To Graphics Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 8 Technical Writing In Japan Seminar. Berkeley. Society For Technical Communication. Call: Ray Bruman, (415) 549-1509

March 8 Word I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 8 Introduction To Illustrator Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 9–10 Time Line Workshop. San Francisco. Symantec. Call: (415) 898-1919.

March 9 Word I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 10 Introduction To Excel Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 11 De Anza Computer Mart. Cupertino. De Anza College. Call: (408) 996-4350.

March 11–12 Computer Show And Sale. Oakland. Golden Gate Shows. Call: (415) 388-8893.

March 12 San Francisco Computer Show, Sale, And Swap. Fort Mason Center, Bldg. A. Compu-Shows. Call: (415) 931-0423.

March 13-16 Interface '89 Plus Exposition And Conference. New York. Businessweek & Data Communication. Call: Cheryl Delgreco, (617) 449-6600.

March 13-15 New Technologies: Building On The Fourth Wave Seminar. San Francisco. Seybold Seminars. Call: Kevin Howard, (213) 457-5850.

March 13 PageMaker I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 14-16 Computers In Libraries Conference And Exhibition. Oakland. Meckler Corporation. Call: Hannah Preston, 1-800-635-5537

March 14 PageMaker I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 14 HyperCard I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 15–17 Finance And Accounting For Technical Managers Course. San Francisco. Integrated Computer Systems. Call: John Valenti, 1-800-421-8166.

March 15 Basic Macintosh Hands-On Class. Fort

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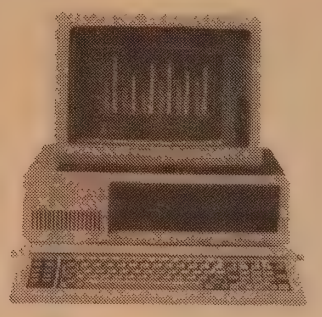

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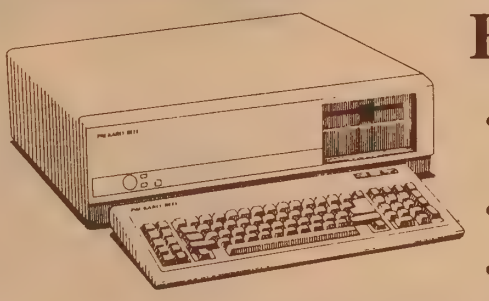

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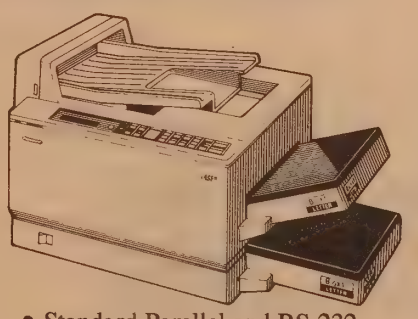

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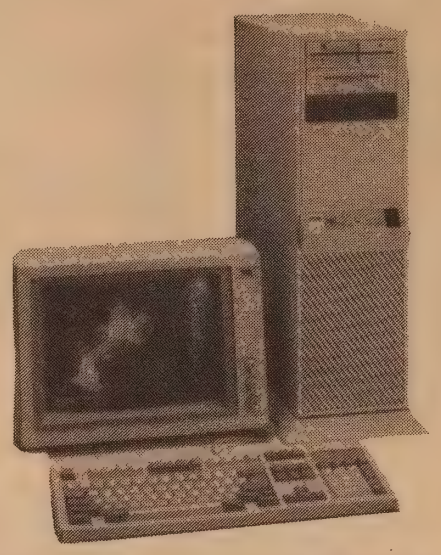

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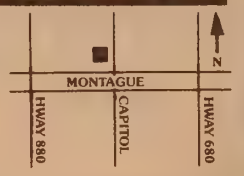

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March 15 Word I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 16-17 Systems Solutions For The '90s: Putting The New Technology To Work. San Francisco. Seybold Seminars. Call: (213) 457-5850.

March 16 Introduction To Excel Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 17–19 The 14th West Coast Computer Faire. San Francisco. The Interface Group, Inc. Call: (617) 449-6600.

March 17 Producing Your Newsletter Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 18 LAN Essentials: Installation & Configuration Class. Oakland. DATAssociates. Call: (415) 465-9083.

March 19 San Francisco Computer Show, Sale, And Swap. Fort Mason Center. Compu-Shows. Call: (415) 931-0423.

March 20-24 Second Annual Data Access Corporation Conference. Miami Beach. DataAccess. Call: (305) 238-0012.

March 20–21 Time Line Workshop. San Francisco. Symantec. Call: (415) 898-1919.

March 20 PageMaker II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 21 PageMaker II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 21 HyperCard II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 22 Word II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 23 Word II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 25 deBase deMystified. San Francisco. Prolog Financial Systems. Call: (415) 441-3117.

March 25 Computer Show And Sale. Santa Clara. Golden Gate Shows. Call: (415) 388-8893.

March 25 Shop Till Ya Drop Computer Swap. San Jose. Microshows. Call: 1-800-433-7469.

March 27 Computer Viruses: How To Identify, Banish, And Prevent. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 28 Introduction To Graphics Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

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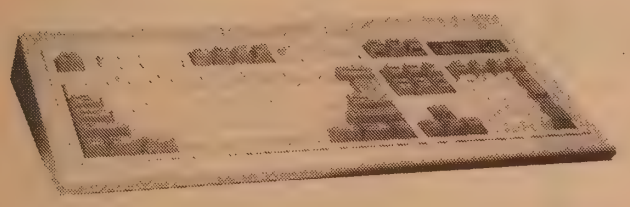

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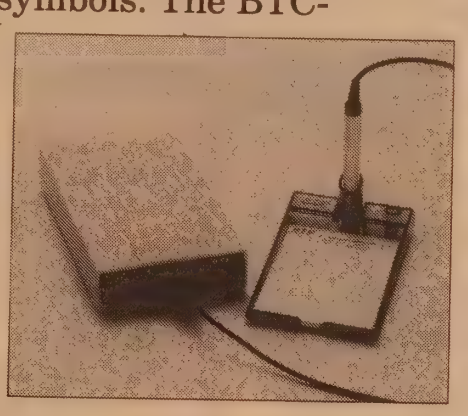

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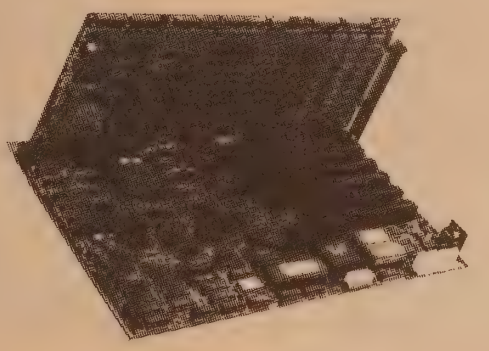

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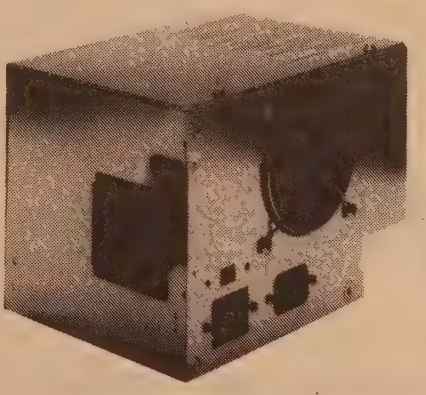

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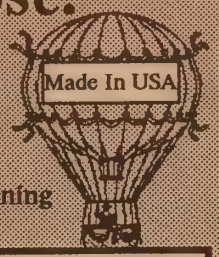

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March 28 HyperCard III Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 29 PageMaker III Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 29 Word III Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

March 30-31 Western Educational Computing Workshops. San Diego. California Educational Computing Consortium. Call: (415) 338-1212.

March 30-31 Programming Neural Networks Seminar. Burlingame. Software Development Seminars. Call: (415) 397-1881.

March 30 Basic Macintosh Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 1 Computer Show And Sale. Santa Rosa. Golden Gate Shows. Call: (415) 388-8893.

April 1 Shop Till Ya Drop Computer Swap. San Francisco. Microshows. Call: 1-800-433-7469.

April 3–4 DataFlex Programmer's Class. San Jose. Goldcoast Software Systems. Call: (415) 964-1500.

April 3 Word I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 4 Word I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 5 Advances In Technology Benefitting People With Disabilities. San Francisco. Association For Women In Computing. Call: (415) 655-3110.

April 5 PageMaker I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 5 Introduction To Graphics Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 6 Basic Macintosh Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 6 PageMaker I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 7 Introduction To Excel Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 8–9 Computer Show And Sale. Oakland. Golden Gate Shows. Call: (415) 388-8893.

April 10-14 Hong Kong International Computer Conference. Hong Kong. American Federation of Information Processing Societies, Committee on Science and Technology. Call: (312) 299-4227 or 299-4270.

April 10-13 MACdex/Spring. Chicago. The Interface Group. Call: (617) 449-6600.

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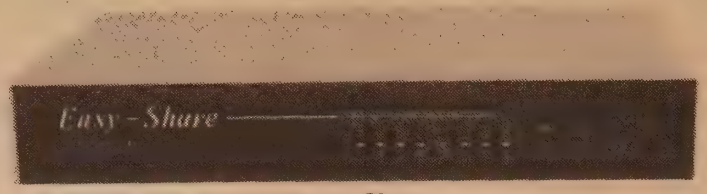

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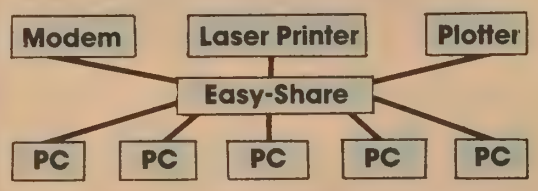

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April 10–13 COMDEX/Spring '89. Chicago. Interface Group. Call: (617) 449-6600.

April 11-14 Structured Design & Programming Course. San Francisco. Integrated Computer Systems. Call: 1-800-421-8166.

April 11 Basic Macintosh Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 11 Word I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 12 PageMaker I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 12 HyperCard I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 13 PageMaker I Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 13 Producing Your Newsletter Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 16 San Francisco Computer Show, Sale, And Swap. Fort Mason Center. Compu-Shows. Call: (415) 931-0423.

April 17 Word II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 18-20 Connect '89, The Technical Conference And Exposition For MIS/Communications Professionals. Boston World Trade Center. Hill and Knowlton. Call: (617) 330-7630.

April 18 Word II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 18 Introduction To Illustrator Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 19 PageMaker II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

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April 20 PageMaker II Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

April 21 Basic Macintosh Hands-On Class. Fort Mason, Bldg. D. Computer Alliance. Call: (415) 771-1671

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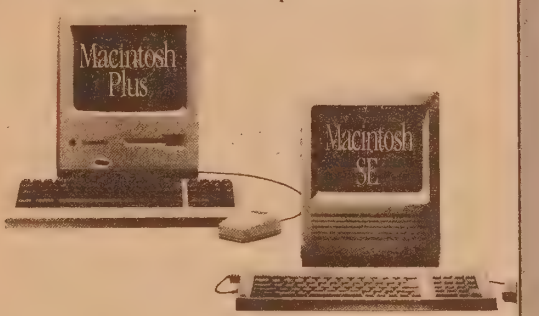

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BY PAUL HOFFMAN

IN THE NEWS . . .

Solbourne Introduces First Non-Sun SPARC Workstation 24
Backed by Japanese corporate giant Matsushita, this Colorado-based startup has introduced Sun-compatible workstations with multi-processor capabilities and SPARC technology.

DEC Reenters Workstation Market 24
New workstations from DEC combine VAX architecture, RISC-based technology, and surprisingly low prices.

Macworld Expo Roundup: Excited About Upgrades 26
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Up Again, Down Again: Apple Lowers Mac Prices 26
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Apple Admits Error, Lowers Prices, Scares Wall Street .. 28
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IBM Releases PostScript Printer With AppleTalk Interface 34
Big Blue enters the laser printer market with a direct shot at the LaserWriterII NT.

Microsoft Takes Aim At 1-2-3 Again 34
Long delays in delivering 1-2-3 version 3 give Microsoft the chance to make you an offer you can't refuse.

Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on USENET (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

Solbourne Introduces First Non-Sun SPARC Workstation

When Sun introduced the SPARC CPU architecture, they said that they wanted competition, and now they have the first of it. Solbourne Computer, a Colorado-based startup backed by Japanese giant Matsushita, introduced two workstation computers that compete directly with the Sun 4/260 and Sun 4/110. The Solbourne Series4 computers run at approximately 10 MIPS and are completely software compatible with the Sun-4 series. Solbourne is the first of many manufacturers who have taken up Sun's challenge in the SPARC arena by introducing computers that are faster, have more features, and cost less than Suns. In addition, the Solbourne systems are multiprocessing machines (with up to four processors), while the Sun systems can only support a single processor.

Solbourne has already begun volume production of the workstations, and says that its testing of software for the Sun-4 series has shown absolutely no incompatibilities. This is aided by Solbourne's licensing of the SunOS operating system, SunView and NeWS windowing software, and NFS and ONC networking software from Sun. According to manufacturers of products that run on the Sun-4 series, the Solbourne performs flawlessly and often runs a bit faster than the comparable Sun systems. The Solbourne systems use the same Fujitsu SPARC CPU that Sun uses in its Sun-4 series.

The new systems, dubbed the 4/601 and 4/602, each come with 16 Mb of RAM, a 327 Mb disk, and a 150 Mb tape drive. They also include a one-year service contract. The systems cost around $50,000, making them less expensive than the similar Sun systems at about the same speeds.

Solbourne has already announced that it expects to have much faster systems within a year. Solbourne is already working on an ultra-large scale integrated (ULSI) version of the SPARC CPU, which would allow them to make systems with fewer chips, bringing the price down while increasing the speed. This could drop the price of workstations by half in two years if the ULSI chip is successful.

In addition, Solbourne is heavily backed by Matsushita, which is in the top 20 companies in world-wide computer revenues. Matsushita's computer revenues from mid- and large-sized computers is currently less than 5%, and it will rely heavily on Solbourne to boost that in the next few years. Matsushita, whose total company revenue was $38 billion last year, is heavily committed to manufacturing in the US, so it is likely that the Solbourne computers will start being built here soon. Matsushita has already stated that it will use its clout in Japan to help heavily market the Solbourne computer throughout Asia. This overcomes one of the most common problems for US startup companies and gives Solbourne a strong push towards volume production.

DEC Reenters Workstation Market

DEC is not pulling any more punches with its mid-level systems. In a direct attack on Hewlett-Packard, Apollo, and Sun, DEC introduced new workstations that use the VAX architecture and a new RISC-based system with a CPU designed by Mips Computer. It also announced new PC-compatible computers, manufactured by Tandy, that can be networked to the new systems. To tie them together, it also announced that it will support the DECWindows user interface on a wide range of computers. The announcements showed that DEC is no longer betting the company on the VAX operating system and architecture, and is willing to open up its marketing operations to many diverse systems.

The very low prices of the new workstations stunned many observers. DEC normally prices new offerings high and brings the price down as it creates more powerful variants of the computers. Instead, DEC introduced the new systems at a price/performance ratio much lower than comparable H-P and Sun workstations. In another new strategy, DEC is offering the new workstations without hard disks, indicating that it is fully committed to supporting them over networks from the beginning. The reaction to the new announcements, especially from large corporate sites who use higher-end DEC equipment for engineering and financial tasks, was much more positive than for other announcements in the past few years.

The new RISC-based workstation, the DECstation 3100, is rated at 14 million instructions per second (MIPS), about twice as fast as the Sun-4/110 with which it will compete; the cost, however is 40% lower. DEC took a gamble by using the Mips Computer RISC chip, since there is not a great deal of software ported for it. However, the initial announcement was supported by many manufacturers who had early models of the DECstation 3100, including Autodesk and Natural Language Incorporated. The bare-bones system costs $11,900 and comes with 8 Mb of RAM, built-in Ethernet networking and SCSI disk interfaces, and a 15-inch color monitor.

DEC also bolstered its VAX line with the VAXstation 3100, 3520, and 3540 systems. The diskless version of the VAXstation 3100, which runs at 3 MIPS and comes with 8 Mb of RAM, costs only $8000. It will run VMS applications only. The

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NEWS
AND ANALYSIS

VAXstation 3520 and 3540 models are meant as graphics workstations. running at 5 and 10 MIPS, respectively. They will support both the VMS and ULTRIX operating systems, running symmetrical multiprocessing with either 2 or 4 CPUs in each system. They will come with 19 inch high-resolution color monitors.

On the lowest end, the new DECstation PCs are intended for sites which must use PC compatibles but want to buy DEC brand equipment. DEC's previous foray into the PC market, the VAXmate, was a dismal failure in the market. The new DECstation PCs have a much better chance than the VAXmates (although no one is expecting them to sell well outside of the DEC market), since they are being produced by Tandy, which already does extremely well with compatibility and reliability. The DECstation 210 is an AT clone, and the DECstation 316 and 320 are 80386-based systems with lots of RAM; all will run under MS-DOS.

Macworld Expo Roundup: Excited About Upgrades

The number of really new products at Macworld Expo was smaller than at previous shows, but people walking the aisles were looking carefully at the upgrades being shown in many booths. The just-announced SE/30 did not generate much interest, due mostly to high price and availability of low-cost accelerator boards for the current SE. The hit of the show was Silicon Beach's *SuperCard*, an extension/replacement for Apple's *HyperCard*.

Although the SE/30 wasn't a smash hit with show goers, it set the stage for many software vendors to start upping the requirements for advanced software.

Although the SE/30 wasn't a smash hit with show goers, it set the stage for many software vendors to start upping the requirements for advanced software. Many new high-end packages must be run on a Mac II, a Mac SE/30, or an SE or Plus with a 68020 or 68030 accelerator board in order to run at adequate speeds, and many now require 2 Mb of RAM. This trend is not universal, but many software developers said that they would target only higher-end Macs with their packages because there was now a wide range of fast Apple systems.

Many hardware vendors also jumped on the SE/30 bandwagon by announcing add-in cards for the new machine. The slot in the SE/30 is different from the slot in the SE, so hardware manufacturers had to change the configuration of their boards. Most of the add-in boards announced the same day as the SE/30 were communications and graphics boards. Most manufacturers praised Apple for not only giving them plenty of time for redesigning their boards, but also for making the redesign fairly easy by keeping the bus structure relatively similar.

By far the most popular piece of new software at the show was *SuperCard* from Silicon Beach. *SuperCard* extends Apple's *HyperCard* by allowing the user to create programs that run without *HyperCard* and by eliminating many of the restrictions that have frustrated *HyperCard* users. If you have already created a *HyperCard* stack, you can import it directly to *SuperCard*, then use *SuperCard*'s features to extend it. For example, programs produced in *SuperCard* can have their own menus, color, multiple windows, cards of any size, and cards that

Up Again, Down Again: Apple Lowers Mac Prices

Responding both to the heavily negative press about their earlier price increase and to the dropping cost of RAM and other chips in their systems, Apple lowered the prices on many of its Macintosh systems and peripherals. This is most easily seen in the drop in the expansion RAM for the Macintosh, which was dropped by 17% (although it is still about twice as high as the same RAM products from other vendors). The reductions were all in the high end of the Macintosh line, and averaged about 15%.

The price drop cannot be wholly attributed to falling chip prices, however. For example, Apple made significant price cuts in its hard disk line, which is generally unaffected by chip prices. This is certainly due to increased competition in the peripherals market and to the perception that Apple's peripherals are overpriced. In the announcement of the lower prices, Apple worried that many users were buying low-cost Macs and upgrading them with third-party peripherals such as accelerator boards and other people's RAM. Although this practice will certainly continue after the price cuts, the cuts will help bring back corporate buyers who prefer Apple-label products.

Apple's New Prices

	Previous Price	New Price	% Reduction
Macintosh SE, 2 Mb, 40 MB hard disk	$5,069	$4,369	14%
Macintosh II, 4 Mb, 40 Mb hard disk	$8,069	$7,369	9%
Macintosh IIx, 4 Mb, floppy only	$7,769	$6,969	10%
Macintosh IIx, 4 Mb, 80 Mb hard disk	$9,369	$7,869	16%
Macintosh 2 Mb memory expansion kit	$1,199	$999	17%
Macintosh 4 Mb memory expansion kit	$2,399	$1,999	17%
LaserWriter IINTX 4 Mb memory expansion kit	$2,399	$1,999	17%
Internal 20 Mb hard disk	$ 999	$ 799	20%
Internal 40 Mb hard disk	$1,599	$1,199	25%
Internal 80 Mb hard disk	$2,099	$1,699	19%
External 20 Mb hard disk	$1,099	$ 899	18%
External 40 Mb hard disk	$1,699	$1,299	24%
External 80 Mb hard disk	$2,199	$1,799	18%

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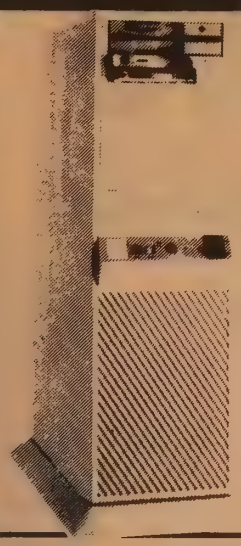

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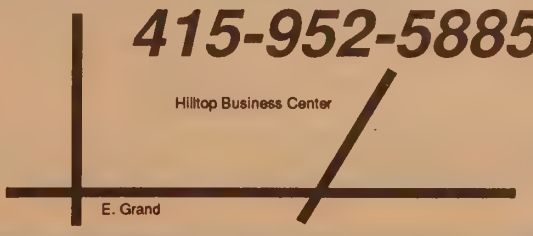

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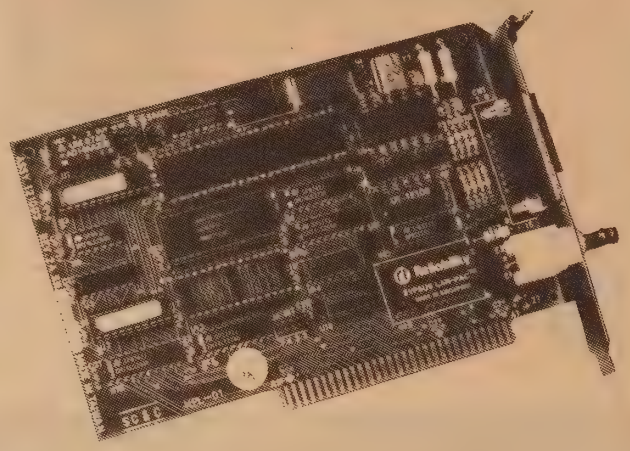

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NEWS AND ANALYSIS

can be sized and shaped by the user. Although the program will not be available for a few months, the demo running in the Silicon Beach booth worked well and showed off all of *SuperCard*'s advanced features.

SuperCard wowed not only *HyperCard* fans, but many application programmers as well. Since the programs produced by *SuperCard* can be run by anyone, many programmers expect *SuperCard* to become a major new development environment for the Macintosh. Its low cost ($199) and its extremely easy method for linking cards will probably put pressure on other inexpensive development environments such as Lightspeed C and Pascal. Since *SuperCard* can use all of the resources that people have been developing for the large *HyperCard* market, *SuperCard* developers will have much less work to perform for linking *SuperCard*-based applications to the rest of the Macintosh. Apple supports Silicon Beach's efforts to extend the *HyperCard* metaphor, and the product introduction was praised by many Apple executives.

Claris introduced *MacWrite II*, a major revision to the popular *MacWrite* program, showed a major update to *MacDraw II* and introduced *Claris CAD*. Although Claris was touting *MacWrite II* as a huge improvement, it contained relatively few new features over *MacWrite* 5.0, the latest version. *MacWrite II* is faster, shows headers and footers on the screen as they will be printed, and offers a more powerful search and replace feature. The formatting available in *MacWrite* 5.0 is significantly expanded, and Claris added a thesaurus desk accessory. The upgrade from 5.0 to II is $65, and the package will sell for $249.

The features added to *MacDraw II* make it more useful for creating business presentations and charts, such as notes that are attached to objects in a drawing and a slide management feature. The upgrade for *MacDraw II* is $30.

Claris CAD is a two-dimensional drafting package aimed at designers and drafters. It supports all major drafting standards and has built-in plotter support. It costs $799, and is available as an upgrade to *MacDraw II* for $399.

Apple Admits Error, Lowers Prices, Scares Wall Street

Even as the stock market gets back to its post-crash high and commensurate post-crash euphoria, Apple's stock is having problems.

Many stock market analysts gave Apple high marks during 1988 and predicted quarterly earnings higher than last year's. Apple's problems this summer and fall, however, caused the company to predict second-quarter earnings a bit more than half of last year's, which made the stock tumble by 10% in one day, then continue to have high activity for the week following the announcement.

Some people feel that the market is overreacting, since Apple's revenues are up over 35%, and that it was simply a bad call by overly-optimistic analysts who had to save face in retreat; others say that it

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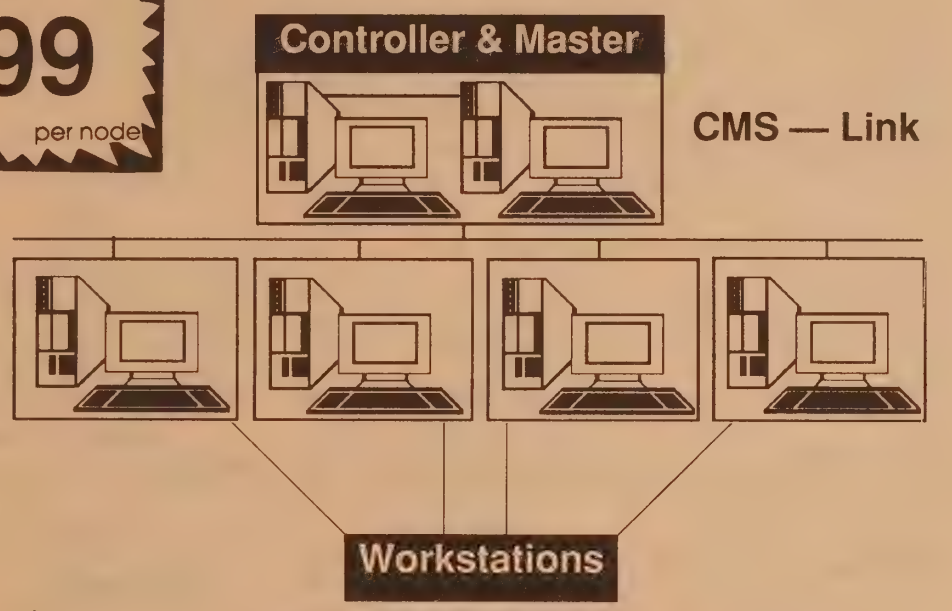

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NEWS AND ANALYSIS

points to some serious internal marketing problems at Apple.

During the announcement of lower earnings, John Sculley, Apple's president, made two very interesting admissions. First, he said that Apple had raised system prices in September because it had to begin buying DRAM with short-term contracts last summer, when DRAM prices were almost at their peak. Second, he said that in response to the higher prices, buyers began buying stripped-down versions of the Apple hardware and adding third-party memory and disks, and that this surprised Apple.

These two situations show that Apple is becoming increasingly susceptible to the factors that have affected many other computer manufacturers for years. They also indicate that Apple may be in for more shocks as the year progresses.

As one might expect, the DRAM shortage and accompanying price increase has hurt manufacturers of systems which require a large amount of RAM much more than it's affected those which don't. The original Macintosh only needed 128 K to run simple programs, and many programs will still run fine on a 512 K Mac. However, Apple was seduced by the capabilities of larger and larger programs, and made it so that the minimum usable configuration for a Macintosh was 1 Mb of memory, with 2 Mb strongly suggested for most design and business uses.

This was done, of course, when DRAM was cheap and getting cheaper. When the US decided to slap restrictions on the Japanese, the major suppliers of DRAM, the price shot up. Many manufacturers, including Apple, had not made long-term contracts with the Japanese for 1-meg DRAM chips because they were sure that 4-meg chips would be in the offing soon and that they would want those much more than the 1-megabyte chips.

The restrictions were originally requested by American chip makers, not computer makers. In fact, they have done little for the American chip makers, because none of them has gone back into the DRAM market, and the increased price of RAM for computers has put a crimp on short-term orders for computers, and therefore on chips. The Japanese have logically responded by being much more cautious on their pricing of more advanced RAM chips, leading to higher prices all around.

Apple and other manufacturers could have avoided being hit as hard by making longer-term contracts with the DRAM manufacturers. However, American companies are not good at long-term planning and projections, so many of them made much shorter contracts and were hit hard when the contracts expired. Apple was particularly unlucky in being forced by increasing Macintosh sales into the open DRAM market at an especially bad time.

Apple's larger blunder, however, lay in not foreseeing the effect of its price increases. Clearly, Apple's management has gotten cocky lately, and they've done a poor job of looking at what their buyers are doing. The third-party peripheral market has always been strong in the Macintosh world, especially in the area of memory and disks. For Apple to assume that the higher prices would not

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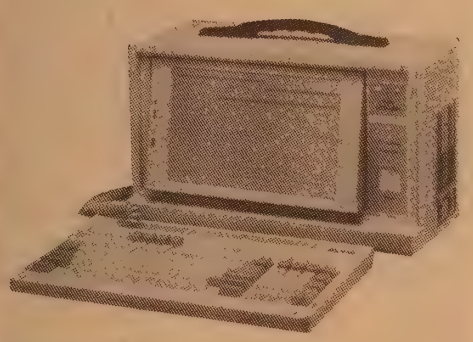

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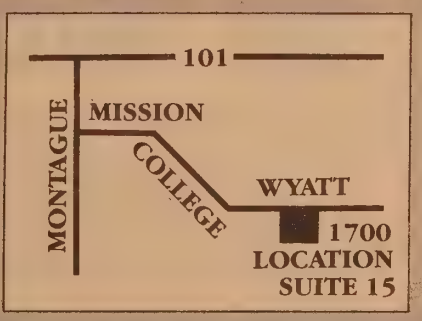

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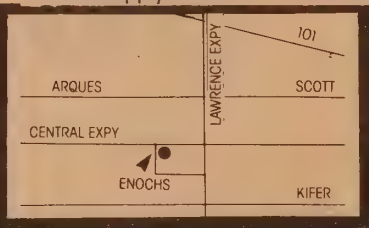

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NEWS AND ANALYSIS

Should the stock market be worried about Apple? Probably not.

significantly affect the way Apple dealers sold machines indicates that the company is out of touch with both its potential buyers (understandable given the wide range of Macintosh users) and its dealers (less so, given their limited number and the ease of checking up on them). Looking through the pages of *MicroTimes*, you can see ads for authorized dealers selling Macintosh SEs with non-Apple disks, as well as numerous small stores hawking extra memory at less than half of Apple's prices.

All computer manufacturers are susceptible to dealers undercutting their sales strategies by buying models at the low end of a product line and souping them up. IBM had a serious problem with this in 1983-1985, before the clone market segmented itself into known brands (like Compaq and AST) and only-in-this-store brands. Apple should have seen this coming and tried to stop it, or else given in and incorporated the changes into their sales predictions. Apple has even more to lose than IBM did, in that many fewer corporate buyers insist on having everything in a box be from Apple. IBM was able to use the IBM tag as a strong selling point for many years, and probably still has more clout in the label market than Apple does, even though IBM has many more strong and well-established competitors and has allowed a much greater degree of cloning than Apple has. It is reasonable to expect that dealers will increase the use of third-party hardware in bundles with Macintoshes until Apple significantly lowers its prices or becomes more nasty about its dealer relations.

Should the stock market be worried about Apple? Probably not. To be sure, the company is not run like many of America's large industries with which the stock analysts are more familiar. That, however, is distinctly to Apple's advantage in this case. Apple will live and die by its innovation and research and by its marketing, not by the stability of its corporate structure or its ability to predict relatively small changes in inventory over the long run. As Sculley pointed out, the market acceptance for Apple products is still increasing, especially in the corporate community. Even with the high prices, people are buying the higher-end Macintosh and Apple IIGS systems, willing to accept the greater cost for greater usability. After the initial drop, Apple's stock has started to climb back, and may even go higher as people realize that what should be a selling signal for another stock should not mean much for Apple.

If the stock market wants to worry about Apple, it should look more at Apple's newly-recognized vulnerability. The Macintosh market has never been

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NEWS AND ANALYSIS

price-competitive with the IBM clone market, and that is likely to get worse instead of better in the next year. In addition, more PC systems are starting to sport graphical user interfaces similar to Apple's. Buyers who want the advantages of the Macintosh user interface (ease of learning, ease of integration) now have many more choices for applications in Microsoft *Windows*. In fact, Microsoft is making a great deal of fuss about the similarity between the interfaces in *Excel* on the PC and on the Mac. If Presentation Manager for OS/2 ever takes off (and there are no assurances that it will), Apple will be even more vulnerable on features.

Apple's attitude problems have not gone unnoticed by its customers. Even Macintosh loyalists roundly decried Apple's tactics in its suit against Microsoft and Hewlett-Packard. When Apple raised its prices in September, the anti-Apple rhetoric was especially strong. This is a large area of weakness for Apple, since the advantages of using a Macintosh are more easily described by a happy user than an advertisement. IBM and the clone makers have not come under nearly as much fire as Apple in the last few years, and Apple has not done much to avoid it. Apple openly admits that it doesn't get the respect from the press that it thinks it deserves, but it does very little to earn it.

The people who will most notice Apple's attitudes are its current customers. Apple relies on these people to not only market its systems to non-Mac users, but also to replace their current hardware with higher-powered systems as they become available. If these people object to Apple's attitude, they may switch to other systems or buy enhancements from the growing number of third-party vendors.

IBM Releases PostScript Printer with AppleTalk Interface

Who says IBM can't recognize a good market when it sees one? IBM just announced a new PostScript laser printer, the Personal Page Printer II, which can be connected directly to Macintoshes over an AppleTalk network. The new printer is a direct competitor with Apple's LaserWriter II NT in features and price. Many people took the announcement as an acknowledgement on IBM's part that Apple has far and away the largest portion of the medium-price market and that many IBM customers have had to go to Apple to get the price and performance they needed.

The Personal Page Printer II (PPPII) has a list price the same as the LaserWriter II NT, $4999, and has only a few additional features. It has both serial (RS-232) and parallel ports so that it can hook to PCs and clones, and has an AppleTalk connector as well. (In its press release, IBM said that this was so that the printer "can be attached to Apple workstations.") It comes with 43 PostScript typefaces and has 2 Mb of RAM, expandable to 4 Mb. Like the LaserWriter II, the PPPII can also emulate the Hewlett-Packard LaserJet Plus; in addition, it can emulate the popular IBM Proprinter XL.

Microsoft Takes Aim At 1-2-3 Again

Keeping the pressure on Lotus while customers wait impatiently for *1-2-3* version 3, Microsoft recently began a new campaign to increase its share of the PC spreadsheet market. Users can now get free demonstration copies of *Excel* so that they can try out all of its features, including saving, on small spreadsheets. The promotional copy is limited to worksheets of 16 rows by 64 columns, but is otherwise just like the retail version, according to Microsoft. To make the attack stronger, Microsoft is offering $75 for *1-2-3* users who buy *Excel* after February 1 of this year. New *Excel* users must send their sales receipt, the *1-2-3* master disk, and *Excel* registration card to receive the rebate. If they prefer, they can get a copy of *Windows/286* or *Windows/386* instead.

In the last few months since Lotus announced the delay in *1-2-3* version 3, Microsoft has greatly increased sales of *Excel*, partially due to their guarantee to take the product back with a full refund until 1990. Microsoft admits that it currently has only 12% of the spreadsheet market, but wants to increase that significantly by pointing out the weaknesses of *Lotus*, such as lack of a graphical interface and poor-quality graphics. With many large companies which use *Excel* on the Macintosh as their major spreadsheet, Microsoft hopes that the promotional demo will convince large buyers to either standardize on *Excel*, or at least allow *Excel* as an acceptable buy for people who want it. ■

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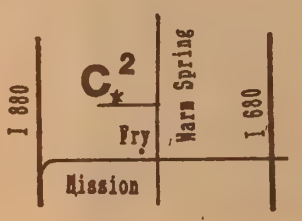

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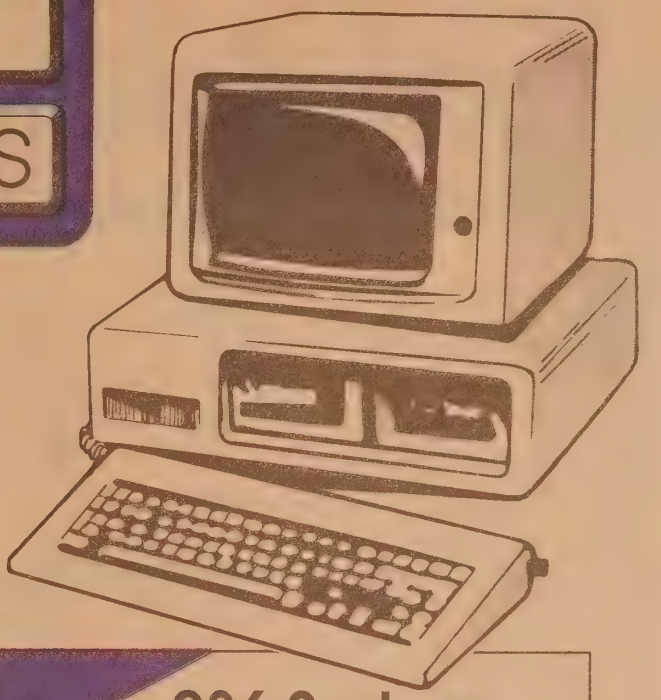

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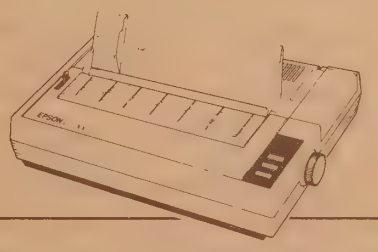

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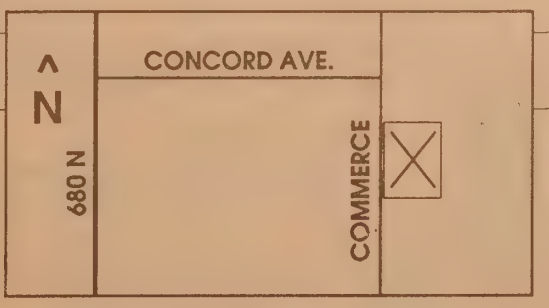

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Realizable Fantasies:

College Computer Funds, Personal Preferences, And Revisitations

Most columns review what is. This proposes what could be.

A Real Fund Fantasy

A workshop at a national computer conference last November reported that over 90% of computer research funding at the nation's top four computer science universities—Stanford, UC Berkeley, MIT and Carnegie Mellon—comes from the Department of Defense!

A fantasy much in need of realization: Let government funding for projects and research not of direct military value be channeled through departments other than the DoD. Channel it through the National Science Foundation, or Department of Education, or NASA, or maybe through an up-front Academic Porkbarrel Program.

Note: Letters to your Congressional representatives—and local newspapers—regarding such funding issues do make a difference. Elected officials typically consider a single letter to be reflective of between 100 and 1,000 similar opinions among their constituents.

Personal Preferences

From time to time, folks ask me which software I use for this or that. For the most part, I prefer the inexpensive packages—when they are as robust as the high-priced spreads. I find special delight when such software also comes from companies that are small, human-oriented and innovation-inclined.

For word processing, I use Quicksoft's *PC-Write* shareware. Created by Bob Wallace—who also created the term "shareware"—it is powerful, well-supported (even when I call anonymously) and amazingly economical ($15-$89). And, it has shareware's particularly delightful feature that you can get a copy of it and "test" it to your heart's content, free, for as long as you want. (Quicksoft, Inc., 219 First Ave. N #224, Seattle, WA 98109, 206/282-0452.)

For programming, I bought Borland's stuff—*Turbo C, Turbo Pascal*, etc. I can't see any reason to pay three times Borland's price ($149.95) for Microsoft's compilers, when Borland's Turbo-stuff seems to be functionally the same—or maybe better. (Borland International, 1800 Green Hills Road, Scotts Valley, CA 95066.)

For spreadsheets, I've been using Paperback Software's *VP-Planner* and its upgrade ($99.95-$179.95). Partially, I like it because it's reasonably robust, comparable to or maybe better than *1-2-3*—except for limited LaserJet support, at least in my somewhat elderly version. And partially, I like Paperback Software because they provide low-cost, good-quality packages.

But most of all, I support Paperback because they are the target of giant Lotus' infuriating "look and feel" litigation that seemingly seeks to suppress competition through consumptive legal expense rather than legitimate price-and-feature competition. (Paperback Software, 2830 9th St., Berkeley, CA 94710).

For computer-aided drafting, I use the Big Daddy of microcomputing, CAD—Autodesk's *AutoCAD*. In its full-figured form, it is hardly inexpensive. But it has the robustness, features, and support that can only come from unusually talented innovation, powerful extensibility, careful attention to almost a decade of user feedback, significant third-party add-ons—and several million lines of source code that took many years to develop. Furthermore, it is user-programmable via a Lisp system that is part of the package. (Autodesk, 2320 Marinship Way, Sausalito, CA 94965, 415/332-2344.)

Copyright © 1989 by Jim Warren. All rights reserved. *Jim Warren founded the West Coast Computer Faire, the* Silicon Gulch Gazette *and* Infoworld *newspapers, Video Initiative and the DataCast proposal for broadcast-based paperless electronic newspapers utilizing personal computers. He was the founding host of the PBS* Computer Chronicles *series, founding editor of* Dr. Dobb's Journal, *and founding president of the Microcomputer Industry Trade Association.*

Home Phones Revisited

A few columns back, I pleaded for consumer-priced home phone systems with PBX-style capabilities and functions. Jim Gottlieb of L.A. wrote to refer me to Panasonic's KX-T systems. He noted that their 308 series is under $400 and allows three trunks (incoming lines) and eight stations (extensions, each of which may have more than one phone attached to it). Now, that's neat!

Strange he should mention it: After I wrote the column, I was similarly grousing to telecom wizard Jim Gallaway of GEI in Redwood City. He had also suggested Panasonic's gadgets as being the best thing he'd seen near my criteria. And, about a week before Gottlieb's letter, I took delivery on a KX-T 1232 with joy and hope.

My only hesitancy was that minimum-information brochures were readily available, but a San Francisco phone systems store said it was almost impossible to get the full tech manual for these units without buying a system—hardly an appropriate marketing policy for high-tech areas.

Apple's Pricing Yo-Yo

After Apple's price increases late last fall, I called for consumers to show reciprocal loyalty by refusing to buy such Apple products until their prices rolled back. Within a week or so of that column's publication in January, Apple reduced many of its prices. This was, no doubt, due to my column (yeah, uh huh, sure—well, it's a nice fantasy...).

Over 90% of computer research funding at the nation's top four computer science universities comes from the Department of Defense.

Apple gave several rationalizations for the rollback, but they missed a great opportunity to increase customer loyalty and respect. They could have simply said that part of their reason for the rollback was that their earlier price increases were in error; their outraged customers were right —and they valued their customers' opinions and loyalty (especially after the Christmas selling season was finished).

But they didn't. Sadly, most leaders—executives, managers, politicians—seem rarely willing to publicly admit they err. They have no idea how much such admissions can enhance respect for them among their customers, staff, and voters.

Quickies

Who was the Silicon Valley figure who told a *San Jose Mercury* reporter that Ashton-Tate's repressive litigation against competitor Foxbase and others was just "A bad case of [male organ] envy"?

Surely some Mac adder has already used "Muse" as a product name. My Webster's says it means "a source of inspiration" or "a guiding genius." Of course, it also refers to the nine Greek goddesses who presided over song, poetry, the arts, and science—but that somehow seems less applicable.

Knowledge of automated information processing is becoming essential for adequately informed decision-makers—including public officials. Here are some experienced computer professionals now in politics and public positions: Ted Laliotis of H-P is a Los Altos Town Councilperson; consultant Marc Kaufman serves on his town's Planning Commission; Walt Reynolds of Applied i is an elected water board Director; and I'm a county community college district Trustee (which has been highly, uh, "educational"). And that's just on the San Francisco Peninsula. Please send details on others.

Ideas Solicited

Send suggestions for this column to Jim Warren, Realizable Fantasies, 345 Swett Road, Woodside, CA 94062. Published proposals will be attributed to their authors unless anonymity is requested. ■

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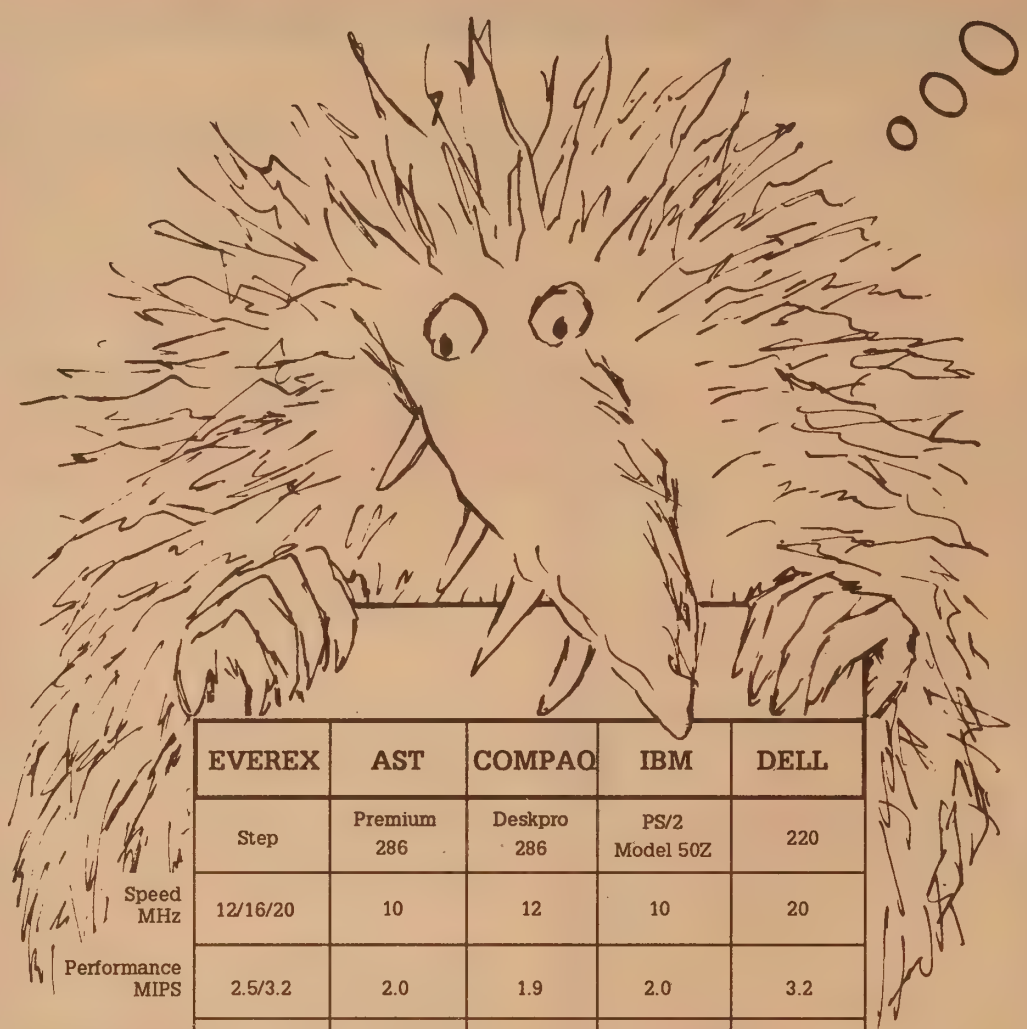

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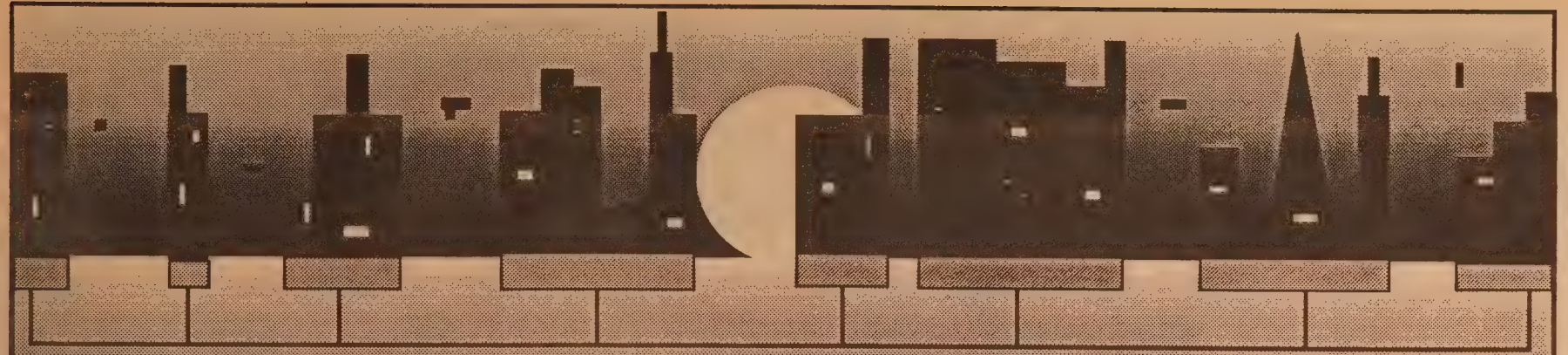

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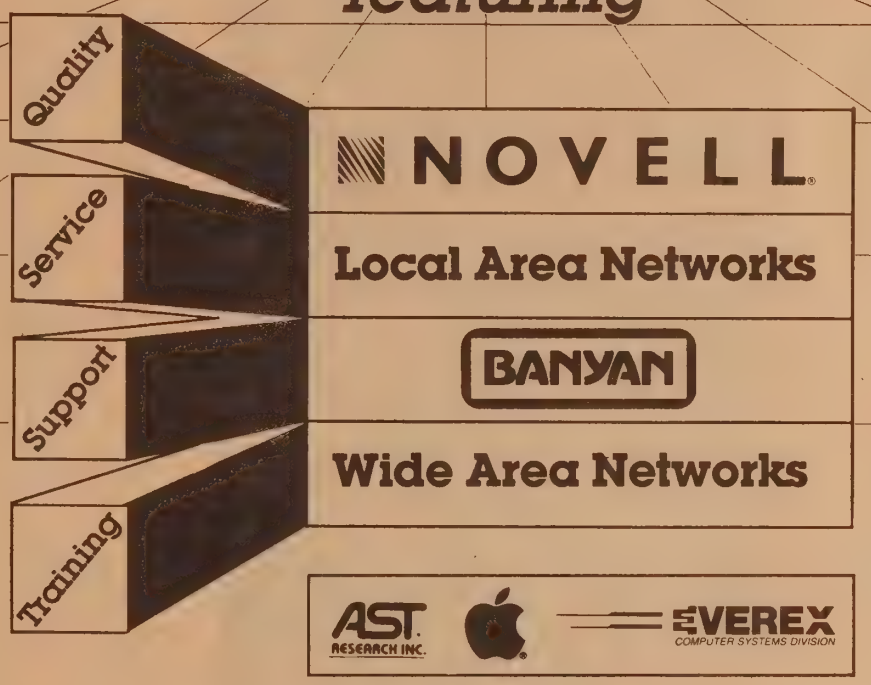

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The Internet "Virus" Revisited

How It Worked, Who Was Affected, What It Means

By Sharon Fisher

It's been called the consummate hack, a youthful prank, a mistake, and a sinister plot. Its author has been called a hero and offered jobs; he's also been called a crook and threatened with lynching or flaying.

"It" is the Internet worm, released November 2, 1988 onto a computer network that spanned much of the globe, where it infested some six thousand Sun and DEC VAX computers.

While the program itself was stopped within hours, and the bugs it exploited were found and stamped out within days, the Internet worm and its repercussions will be providing data for master's theses and program development—and magazine articles—for years to come.

How It Worked

The program was allegedly written by Cornell graduate student Robert T. Morris Jr., whose father, coincidentally or not, is an expert in computer security. Because it performed no other function, and didn't disguise itself as another type of program, most knowledgeable people have been calling the Internet program a "worm" rather than a "virus," although there is some dissent about this. (See accompanying article "A Software Bestiary" for further discussion of this distinction.)

The Internet worm seems to have broken into systems in three ways, according to a number of experts who have analyzed the code.

First, it exploited a bug in the program used to send mail between UNIX systems. The **sendmail** program, which is not part of UNIX itself but a commonly used utility, had a bug in that meant the program's debug bit was left on, and would allow users to send it a set of commands rather than a user address, as is usual with mail. The Internet worm used this bug to send instructions and copies of itself to other computers. It did this over the Internet, an international computer network (hence the name of the worm).

Second, it exploited another bug in the **finger** utility. Normally, people use finger to find information about other users, such as their full name or whether they're logged in. Because the finger utility (also known as the finger daemon, or a program that runs in the background) didn't check for the length of strings it was passed, the Internet worm could send it a message that was longer than the finger utility's buffers. The information which ran over the capacity of the buffers could then modify the machine's stack, giving it a new set of instructions.

Third, the Internet worm used several brute-force methods of breaking into accounts through checking for no passwords, and then by trying as passwords things such as the user's name or the account's name, words in an internal dictionary, and words in the system dictionary.

Parts of the Internet worm were written specifically for Sun and some Digital Equipment Corp. VAX systems running BSD UNIX (from Berkeley). This meant that other types of machines generally couldn't be infested, and certainly couldn't pass the worm program on to other machines.

As far as people who have examined the Internet worm software can tell, the program wasn't designed to perform any harm on systems, such as destroying files.

However, machines that could be infested promptly began trying to break into other connected machines. Moreover, the Internet worm didn't always check to see if a machine was already infested before attempting to break into it. Therefore, a number of well-connected machines ended up with dozens of copies of the Internet worm, each working hard, resulting in extremely poor performance, some system crashes, and a large amount of machine and network traffic. This is what caught the attention of the people who tracked down and eliminated the worm.

Detection And Cure

The Internet worm was detected quickly at Lawrence National Laboratories in Livermore and in Berkeley, California, due to the amount of traffic it generated and the closeness with which those networks are monitored because of frequent breakins.

"I got it within three minutes of when it touched my network," says Russell Brand, a computer scientist math programmer for the Livermore labs, who says he reacted by turning off the machines to prevent further infestation.

It took about six hours for a team of UNIX wizards—about ten at Berkeley, and about eight at the labs—to figure out what caused the problem and to develop a fix, Brand says.

At the same time, users at a number of other installations, including Purdue University, had also noticed the problem and had begun developing fixes and posting them to the network, along with warnings to system administrators about how to tell whether their systems had been infested.

For this reason, several wizards noted that disconnecting from the network, which was some administrators' first reaction to the worm reports, was in some respects the worst thing they could

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A glossary of computer parasites and remedies, real and hypothetical

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have done, because they were then cut off from the main source of definitive information about the worm. (There's at least one report of a company that literally severed itself from the network—with a fire ax—because administrators, worried about the company's database, didn't want to take the time to figure out how to disconnect from the network more gracefully.)

As the hours, and then the days, went by, progressively more sophisticated and correct reports on the Internet worm, and ways to detect, kill, and prevent it, were posted to the network. By just a day or so later—about 7 pm on November 3—the worm was essentially stopped.

Press Reaction

However, as far as the press was concerned, the story was just beginning. Starting on Thursday morning with the *New York Times*, and continuing for several days, stories on the Internet worm took over the nation's front pages and news broadcasts

Much of the press coverage was hysterical and inaccurate, frightened users who didn't need to worry, called the government's classified computer security into question, and cast aspersions on the same type of UNIX wizards who'd helped eradicate the worm.

nearly as well as the program itself took over computers. It's unlikely that any other previous computer break-in had generated as much media attention.

While some of the coverage—most notably that of John Markoff in the *New York Times*—was intelligent and accurate, many other stories and broadcasts were hysterical, off-base, or just plain wrong. This frightened users who didn't need to worry, called the government's classified computer security into question, and cast aspersions on the same type of UNIX wizards who'd helped eradicate the worm.

In particular, a number of television news broadcasts used footage or quotes from the movie *War Games* to illustrate their stories about the Internet worm, although the movie had little relevance to the situation. (One opportunistic station quickly scheduled a showing of the movie itself, using the headlines to promote the movie.)

Similarly, when photographing and filming "people" shots for the stories, news people often concentrated on traditional "hacker" images of long hair, beards, bare feet, and eccentric dress, or on the dozens of empty Coke cans and pizza boxes that were scattered around the computer rooms. Although these people were the ones who'd stopped and eliminated the worm, the implication was that they were somewhat unstable themselves. (Ironically, when Morris and his father appeared on television later in the week, the young Morris was clean-cut, while his father had long hair and a beard.)

The media often focused on the danger to the government's classified information, such as to the Strategic Defense Initiative system (Star Wars). In reality, according to Brand and others, systems containing classified data are not on the Internet, and aren't linked to unsecure systems. While a number of government installations were infested with the virus—Lawrence Laboratories, for example—no classified systems were infested.

Some of the hysteria can be blamed on enterprising vendors who saw the media attention as a way to focus attention on their security products. For example, a number of companies that produce so-called "vaccine" programs, which purport to protect PCs and Macintoshes from virus infections, called the press to offer their employees as security experts, although a PC or Mac program certainly wouldn't have helped protect a UNIX system.

Other vendors used the opportunity as a warning to users against downloading possibly virus-infected pirated software from bulletin boards. Although pirated software and virus-infected PC and Mac software are definite problems, they're a different issue from the Internet worm.

Vendors And Users React

Although the Internet worm itself is stopped, the holes that it exploited, or other similar ones, are still present in operating systems, say experts. And in some cases, vendors don't seem to be in a hurry to fix them.

For example, in the weeks following the Internet worm, a number of users posted messages to the network saying they'd known about the security flaws that the program had exploited. However, although several of the users said they'd reported the problems to vendors—in some cases, months or years previously—the holes were not fixed.

Moreover, the finger and sendmail bugs are just two of many UNIX bugs. "There are normal lists for posting these things, and dozens of them get posted every month," Brand says. He doesn't blame the vendors for not finding the bugs in the first place—"the finger one I never would have found in a hundred years"—but for not fixing them once they're informed.

"The problem is, once it's reported, why don't they fix it?" Brand says. "In some cases there have been cases where we've requested a security fix, and 18 months have gone by and it still hasn't been fixed."

Other users criticize vendors for what they say is

A number of users posted messages to the network saying they'd known about the security flaws that the worm had exploited. Although several of the users said they'd reported the problems to vendors—in some cases, months or years previously—the holes were not fixed.

essentially taking UNIX software from the research community that developed it, slapping their own label on it, and then selling it without checking for security holes. For their part, vendors say users don't take advantage of the security methods that are there. "Vendors can supply the locks but we can't force the users to use them," says one.

There's also a movement toward educating programmers against writing worms, viruses, Trojan horses, and other destructive programs, but there's some question about how successful these efforts can be, especially when one can wind up on the front page of the *New York Times*. In addition, while education can work for many people, it's often a case of keeping the honest people honest.

"I believe that 99% of the people can be educated," Brand says. "I also believe that 99% of the people can be educated not to drive drunk, but I wear seat belts because it only takes one person to kill me."

No matter what, it seems that the ultimate burden is going to fall on the system administrator—making sure users choose passwords that aren't ridiculously easy to guess, monitoring the network to look for unauthorized users or unusual activity, checking downloaded software carefully before running it on the system, keeping in touch with other administrators to keep up-to-date on bug fixes, and, when all else fails, keeping a good set of backup tapes with which to restore the system if a cracker does slip through.

Much of the information about the Internet worm itself is drawn from "The Internet Worm Program: An Analysis" by Eugene Spafford at Purdue University. If you would like a copy of this (fairly technical) paper, send a self-addressed stamped 8 1/2" by 11" envelope to Eugene Spafford at the Department of Computer Sciences, Purdue University, West Lafayette, IN 47907-2004. Ask for Purdue Technical Report CSD-TR-823. ■

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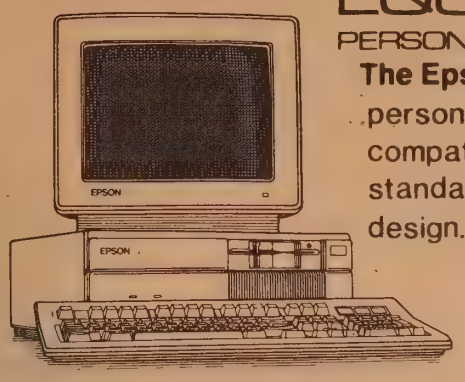

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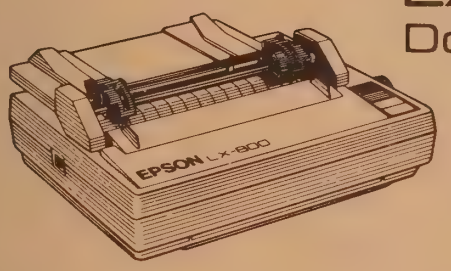

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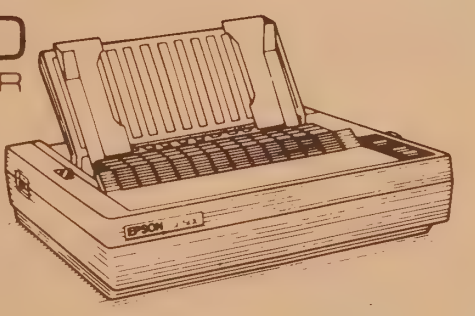

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A Software Bestiary

A Glossary Of Computer Parasites And Remedies, Real And Hypothetical

By Corinne Cullen Hawkins

Viruses

Viruses, in their simplest form, are programs which simply replicate themselves. A slightly more advanced virus not only duplicates a program but renames each one slightly differently. More sophisticated viruses erase files, scramble memory, turn off the power, or do any/all of these things with a time delay, called a time bomb. Some viruses "burn a hole" somewhere so that a certain command will do something else, i.e., given an addition command the program subtracts instead.

Creeper—Possibly the first known virus, first sighted in 1970. Built by Bob Thomas of BBN, it was a demonstration program that crawled through ARPAnet (a nationwide Pentagon-funded network linking university, military, and corporate computers), springing up on computer terminals with the message, "I'm the creeper, catch me if you can!"

A version of Creeper done by Ray Tomlinson not only moved through the net, but also replicated itself at times.

Reaper—In response to Creeper, this virus also jumped through the network, but it proceeded to detect and "kill" creepers. (*The Cincinnati Post*, February 1, 1988)

Rabbit—One of the first known viruses, first sighted in 1974 by Bill Kennedy. When Rabbit was submitted, it copied itself and continued to toss the copies back into the input jobstream (the place where programs start). This slowed the communication between the ASP input jobstream and its console (teletype where system operator sees what's going on), which made Rabbit harder to kill the longer it ran. (Usenet, comp.risks, Bill Kennedy, March 29, 1988).

Pervading Animal—An early proto-virus attached to a Univac 1108 game program called *Animal*. While the user was playing the game, Pervading Animal copied itself into every write enabled program file available. (Mike Van Pelt, comp.risks March 29, 1988.)

Smart Virus—In *The Adolescence of P-1* by Thomas J. Ryan (Collier Books, 1977), there is an example of an intelligent, information hunting virus.

ARPAnet Data Virus—Peter Neumann calls this one an "accidentally propagating data virus." On October 27, 1980, multiple contaminated node status words propagated and defied garbage collection at each ARPAnet node, thus saturating the nodes—and grinding the network to a halt. Status messages are supposed to propagate, but the garbage collection is also supposed to weed out all but the most recent message from each node, and it failed utterly to do this. It's possible that a freakish hardware malfunction caused a high priority process to run wild, devouring resources needed by other processes and thereby making the network unusable. It's also possible that it was done maliciously, or could be done maliciously. (*Software Engineering Notes*, January, 1981)

Virus—first program to be christened a virus, created in 1984 by Fred Cohen.

2600 VAX Virus—This one replicates itself, sends jobs continuously to the batch queue (where programs line up, waiting to be run) and sends the output to SYS$SYSTEM (a place peculiar to this type of computer). All that happens is the queue might overflow. (*2600*, August, 1986, vol. 3, number 8.)

Elk Cloner Virus—First sighted in 1981 or 1982, this one runs on the Apple II family. It inserts itself into the DOS operating system. It makes every command reset the DOS parse state to 0, but this has no obvious effects. Elk Cloner hooks into the RUN, LOAD, BLOAD, and CATALOG commands to make them check the program disk accessed and infect it. It prints a poem:

The Program with a personality
It will get on all your disks
It will infiltrate your chips
Yes, it's cloner!
It will stick to you like glue
It will modify Ram too
Send in the cloner!

(comp.risks, April 26, 1988 by Phil Goetz)

Finger Virus—(From the UNIX command !finger, which provides information on the owner of a particular user ID or on a particular name.) A speculative virus that would go out replicating until it found a specific person. Then it would send that person's e-mail address back to its creator. (Fred Hapgood, First Artificial Life Conference, September, 1987).

Lehigh Virus—First sighted November 25, 1987 by Jeffrey Carpenter, posted on Usenet. It attaches itself to a few lines of the operating system used on the IBM PCs that Lehigh University provides for student use. It is a corruption of a legitimate program, Command.Com, the basic boot-up file of MS-DOS and PC-DOS. The virus destroys data on floppies and hard disks by writing zeros to the first 32 sectors of a disk (which erases the directory kept in the first couple of tracks), making the data unrecoverable. It spreads when a clean PC is booted from an infected disk and the user accesses a second uninfected program disk with the resident commands: TYPE, COPY, DIR, CHDIR, ERASE, MKDIR, RMDIR, or VERIFY. The virus waits until it has been copied four times before it wipes out the data on the disk on which it resides.

(C) Brain Virus—First sighted fall, 1987 at University of Delaware. It changes the volume label (the given name) of a floppy or hard disk to (C) Brain. The boot record contains a message: "Welcome to the dungeon...Beware of this VIRUS. Contact us for vaccination." The message included an address and phone number of Brain Computer Services, a computer company in Lahore, Pakistan, and the names of two brothers, Basit and Amjad.

The virus marks some disk sectors as bad. It modifies several command files, maybe all of them eventually, without changing file sizes or dates. Even if the boot sector is rewritten, the virus remains active through the command files it modified. No known cure (comp.risks, Dan Roth, April 5, 1988).

This is the first virus to infect an American newspaper's computer system (*The Providence Journal-Bulletin*). When the phone number in Pakistan was called, the person who answered expressed surprise that the virus had traveled so far—and refused to give his last name. (*New York Times*, May 25, 1988).

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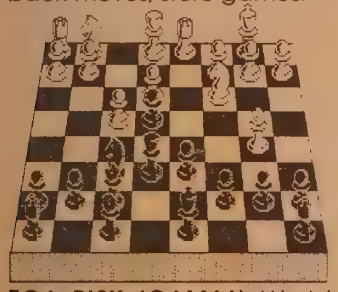
BASIC GAMES (107) Pac-man, Lunar Lander, Startrek, Meteor, Breakout, and others.
CARD GAMES (109) Canasta, hearts, draw poker & bridge.
STRIKER (110) Defender-like game. "Top Gun" in space.
FLIGHTMARE (112) Futuristic fighter pilot game. (Requires color graphics adapter.)
SLEUTH (117) Who done it?
DND (119) Like Dungeon and Dragons.
ROUND 42 (120) Better than Space Invaders. 42 levels.
GAMES IN BASIC (124) Lander, biorhythms, desert, Phoenix, Star Wars, others.
QUEST (152) Role playing adventure fantasy game. (Requires CGA.)
SPACE WAR (158) Dogfight in outer space, using phasers, photon torpedoes, etc.
BRIDGE PAL (171) Complete game of contract bridge, with tutorial.
FENIX (193) Just like the famous arcade game.
PINBALL GAMES (197) Pinball, Rain, Twilight Zone, Wizard, etc.
KID-GAMES (GAM8) Animals math, clock game, alphabet, etc.
CHESS (GAM9) Incredible. 2D and 3D. Many levels. Play back moves, store games.



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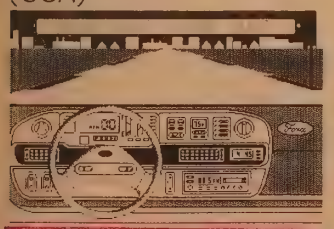
FORD SIMULATOR (GAM37) Great driving simulation. (CGA)



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PC-WRITE 2.71 (401-402) (2 disks) Latest version of this popular program w/spelling checker.
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DANCAD 3-D (1051, 1052) (2 disks) Create 3-D graphics. Rotate, magnify, etc. Runs on CGA, EGA, or Hercules.

SIDEWAYS (1007) Prints text sideways. Useful for spreadsheets.
SIMCGA/HGCIBM (1027, 1062) (2 disks) Use with Hercules graphics card/ compatibles to run programs requiring CGA on your monochrome PC.
IMAGE 3-D (1048) Create and edit 3-D objects. Move, scale, rotate and tip image.
FINGERPAINT (1050) Use keyboard or mouse to draw. Like MacPaint. (Requires CGA or EGA.)
FANTASY (1057) Create flowing graphic images with mouse or keyboard. (CGA).
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RELIGION

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THE BIBLE (3307-3308) (2 disks) New Testament, King James version.
WORD WORKER (3309-3310) (2 disks) Bible search program. New Testament, King James version.
BIBLEMEN (3330) Excellent Bible quiz program.

BASIC

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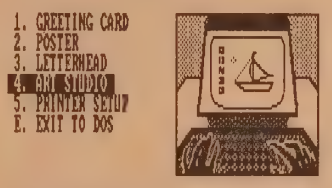

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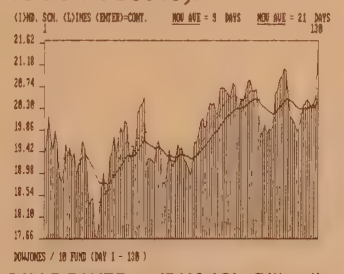

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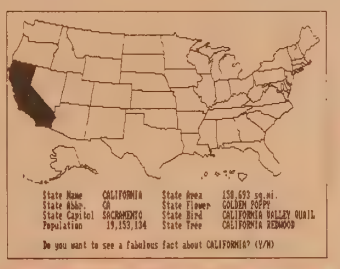
PC-TOUCH (204) Learn typing.
BASIC TUTORIAL (208) Learn programming with BASIC.
BEGINNING SPANISH (211) Tutorial.
SPANISH II (232) Sequel.
BIBLEQ (214) Learn the Bible with this Q-A tutorial.
FACTS 50 (239) Geography lessons for U.S. Nice graphics.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Amiga Virus—This one is a simple modification of the Amiga boot block. On an Amiga floppy the boot block consists of the first two sectors on the disk. Normally it contains a small bit of code that loads and initializes the DOS when it is "booted" or turned on. Some commercial software packages and games store special information in the boot block. Since the virus overwrites this, the information is lost forever. After a certain number of disks have been infected the virus will print a message:

"Something wonderful has happened.
Your Amiga is alive!!!
and even better
Some of your disks are infected by a VIRUS
Another masterpiece of the Mega-Mighty SCA"

(comp.risks, Bill Koester, November 13, 1987)

Israeli Virus—First sighted by Yuval Rakavy, a student at Hebrew University; first mentioned publicly in *Maariv*, one of Israel's daily newspapers, January 8, 1988. It was designed to begin destroying files on May 13, and to slow computer response on the 13th of any month. It would also put garbage on the screen from time to time. What called attention to the virus was an error in the virus code itself, which caused it to mistake previously infected programs as uninfected. In error, it would add another copy of itself to the program. Some programs were infected as many as four hundred times, and the growth in size of the program was noticeable. This one was discovered before D-day, but it had infected home, university, and military computers before it was detected.

MacInVirus— First known encounter by David Spector. This virus was written by a West German and posted to CompuServe in a *HyperCard* stack. The virus is disguised as a resource that inserts itself in a system trap handler (the place where the computer catches errors so they won't cause system crashes). The virus destroys hard disks and the applications that run on them. (comp.risks, January 10, 1988)

"Good" Virus—Written by a West German programmer, this virus won't let "unknown" programs run on one's machines. If the programs to be run aren't already infected with *this* virus, they won't be allowed to run at all. (comp.risks, David Spector, January 10,1988)

Virus Compressor—First speculated by Fred Cohen, this virus would compress the coding of data, permitting it to be stored in a smaller space. It would ask permission of the user each time it acted. (*New York Times*, January 31, 1988)

Target Virus—This one would target a specific program or individual, for example, by systematically altering spreadsheet data, or performing other subtle changes. (*The Cincinnati Post*, February 1, 1988)

The Anti-Virus Software Virus—First speculated by Chuck Weinstock, posted to Usenet February 9, 1988. The virus is, of course, embedded in the software you use to detect viruses, and therefore goes undetected.

Meta-Virus—This is a paranoia virus, created only with words: WARNING! A serious virus is on the loose....By now, it is possible that your system is infected even if you didn't download this program, since you could easily have been infected indirectly. The only safe way to protect yourself against this virus is to print all your files onto paper, erase all the disks on your system, buy fresh software disks from the manufacturer, and type in all your data again. But FIRST! send this message to everyone you know, so that they will also protect themselves.

Meta-Virus—First speculated by Jeffrey Mogul, February 9, 1988 on Usenet. This is a paranoia virus, created only with words:

WARNING! A serious virus is on the loose. It was hidden in the program called 1987 TAXFORM that was on this bulletin board last year....By now, it is possible that your system is infected even if you didn't download this program, since you could easily have been infected indirectly. The only safe way to protect yourself against this virus is to print all your files onto paper, erase all the disks on your system, buy fresh software disks from the manufacturer, and type in all your data again. But FIRST! send this message to everyone you know, so that they will also protect themselves.

This virus took Jeff Mogul two minutes to produce and he didn't even have to write any code. It bears some similarity to the Shoot Yourself In The Foot virus.

Scores Virus—First sighting mentioned in *MacWeek*, April 12, 1988. In existence since at least February, and possibly since as early as September 1987. It infiltrated several government agencies, Apple Sales offices, and the Mac of an unidentified senator, as well as *Macworld* and *Macintosh Today*.

First dissected by John Norstad and Bob Hablutzel, this virus has several time delay features. It's designed to attack two custom applications called ERIC and VULT, but it will infect anything. Several days after infecting a Mac system, the virus attempts to locate and modify any files with the creator code of ERIC or VULT. The code of the virus is written to make the targeted program dysfunctional.

The virus lies dormant for two days after infection. After two, four, and seven days, various parts wake up and begin their mischief. Two days after the initial infection the virus begins to spread to other applications. After four days the second part of the virus wakes up. It begins to watch for the VULT and ERIC applications. Whenever VULT or ERIC is run, the system bombs after 25 minutes' use. After seven days the third part of the virus kicks in. Whenever VULT is run the virus waits 15 minutes, then causes any attempt to write a disk file to bomb. If you don't do any writes for another ten minutes the application will bomb anyway.

Deleting the infected resources isn't enough to remove the virus, since the virus recognizes the attempt and modifies its resource identification and memory location when probed by resource utilities. ResEdit "thinks" that the virus resources have been deleted, but they have been renamed and will return when the Mac is restarted.

Apparently, the virus doesn't attempt to spread itself over networks.

The Scores virus causes printing problems, system crashes, application crashes on launch, and damaged *Excel* files.

MacMag Virus—First mentioned in print in a UPI report February 12, 1988. The virus was launched in December 1987 by Richard Brandow, publisher of *MacMag* magazine in Montreal, Canada. It was supposed to be a simple message of peace, designed to pop up on Macintosh screens on March 2, the anniversary of the introduction of the Apple Macintosh SE and Macintosh II. The virus infects the System file, but doesn't directly affect applications. After March 2 the virus erased itself. Although this virus was designed to be benign, it had some nasty side effects: it played havoc with users' System folders, resulting in thousands of hours of lost work.

The virus spread to Europe and the West Coast; it is the first virus to infect a commercially available personal computer product. It was inadvertently passed to Aldus by Marc Canter, president of MacroMind Inc. of Chicago, which makes training disks for Aldus. Mr. Canter's personal machine caught the virus from an infected copy of *Mr. Potato Head*, a computer game. He ran the program only once; it was enough to infect his computer, which was later used to work on a training software disk for Aldus. Aldus admits that a disk-duplicating

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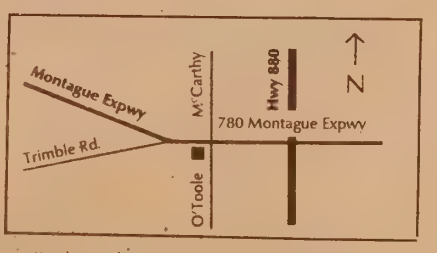

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machine copied the infected disk for three days. Half of the infected disks were distributed to retailers; the other half were warehoused.

Bell Labs Virus—A compiler program (which translates a human programmer's instructions into a set of ones and zeroes that a computer can read) had been altered so that it secretly embedded a hidden "trapdoor" each time it created a new version of the operating system. The secret trapdoor altered the system so that, in addition to normal users' passwords, it would recognize a magic password known only to one person. The instructions never showed up in the program listing—it was undetectable through normal means. The virus never escaped Bell Labs.

Immortal Virus—First speculated by Paul Hoffman, March 13, 1988 in the Macintosh Conference on the WELL. This virus would live in some cache-like memory on a serial port or parallel port (which connects a printer to a computer) so it would survive a warm boot, even after a devirusing.

King Virus—A virus that kills other viruses and replaces them with itself. First speculated by Andrew Beals, March 16, 1988, on the WELL. No known sightings.

King II Virus—A virus that not only kills other viruses, but feeds on them, getting stronger each time. Speculated by Michael Zentner, March 16, 1988, Macintosh Conference on the WELL.

Atari ST virus—First dissected March 22, 1988, posted on Usenet March 26, 1988 by Martin Minow. Once installed, this virus will copy itself onto every non-write-protected disk used. It tests an uninfected disk to see if it contains the virus, replicates, then keeps count of how many times the disk is used after that. When a certain limit is reached, the virus writes random data across the root directory (the central directory) and file allocation tables (which contain the bitmap record of unused sectors) for the disk, making it unusable. The virus then removes itself from the damaged disk. The current virus doesn't affect hard disks. This virus may survive a reset. (This is a warm boot—resetting the machine without turning it off.)

No-name virus—First rumored to exist March 26, 1988 on Usenet, posted by Martin Minow. This virus is almost impossible to detect because for each disk, it scans for any program file (*.prg) and appends itself to the text segment in some way. This makes it very difficult to tell whether or not the virus is actually on the disk.

Trojan Horses

These parasites are bits of code slipped into an otherwise innocent program. Viruses replicate; Trojan Horses do not. Some are written from scratch, some are adulterated copies of legitimate programs, such as *PC WRITE*. Some Trojans erase or scramble data, some just scramble or erase the file allocation table (the computer's index of where data are stored on a disk). Some begin destruction within minutes of infection, others perform as legitimate software for weeks or months, then touch off a time bomb.

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Some Trojans put up a screen message such as: "I'm deleting all your files," then proceed to do so. Some put up a similar screen message, but don't follow through. The more sophisticated Trojan Horses delete themselves with their last line of programming. In other cases the Trojan isn't actually inserted directly into the program. Only a pointer is placed in the program, telling the system which program to run, and the horse is hidden elsewhere.

Notroj—This Trojan Horse pretends to be a program that guards against Trojans. It's actually a time bomb that wipes out the hard disk after it's more than 70% full. (*New York Times*, May 19, 1987)

XmasCard Trojan—First known sighting was on Wednesday, December 9, 1987; it was written as a prank by a West German student. This Trojan began in a European academic computer network (Bitnet) and jumped through electronic gateways to five continents and to the internal email system of IBM. In the IBM internal email system, a holiday message promised to draw a Christmas tree on the screen if someone would type the word "Christmas" on the computer. When they did, it drew a tree but it also sent a copy of itself to all of the other network mail addresses kept in each user's electronic rolodex. Along with a very primitive tree (made of capital Xes), a message was displayed: "A very happy Christmas and my best wishes for the next year. Let this run and enjoy yourself. Browsing this file is no fun at all. Just type Christmas."

Once opened, the program rarely accepted commands to stop. Operators who turned off their terminals to try to stop the Christmas message lost electronic mail or unfinished reports not saved in the computer. The Trojan infected so many machines that it brought IBM's global electronic mail network to a halt, disrupting the system for 72 hours. Plant officials were forced to turn off internal links between computer terminals and mainframe systems to purge the message.

A virus was written to follow and destroy the XmasCard Trojan and then self-destruct in mid-January. The Trojan was generally stamped out by Monday, December 14, 1987. The culprit was tracked down and barred from access to his system.

Turkey Trojan—A program being passed around via ARPAnet and some other computer networks, called "Turkey." It's supposed to draw a picture of a turkey, but it doesn't. Instead, it erases all of the unprotected files in the directory. (comp.risks May 12, 1988)

Run.me—This is a graphics program which plays "The Star-Spangled Banner" and displays the American flag while it worms its way into the hard disk and erases the data on it. (*New York Times*, May 19, 1987)

Worms

Essentially, worms are simple creatures: memory crunchers who rewrite themselves successively through the computer's memory. The programs on individual computers are the segments, which remain in communication with each other. Almost any program can be modified to incorporate the worm mechanism.

Xerox PARC Worm—In 1980, John Shoch at the Xerox Palo Alto Research Center devised a worm which wriggled through large computer systems looking for machines that were not being used and harnessing them to help solve a large problem. It could take over an entire system. (John F. Shoch and Jon A. Hupp, September, 1980, Xerox Palo Alto Research Center)

Existential worm—A worm whose sole purpose is to stay alive. It runs no substantive application program. The Cookie Monster Worm at MIT was one such—it displayed a screen which said: "I'm the Cookie Monster, catch me if you can!"

Billboard worm—A worm used to distribute a full-size graphics image to many different machines. Some have graphics of the worm nibbling up the screen and heading off into memory. (John Shoch, 1980)

Alarm Clock worm—A worm that reaches out through the network to an out-going terminal (one equipped with a modem), and places wake-up calls to a list of users. (John Shoch, 1980)

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Gladiator worms—Bill Buckley and James Hauser developed Core Wars, where the object is to write a worm program that can replicate itself faster than another worm program can eat it. The one alive at the end wins. Some of the winning programs have a chromosome consisting of only four lines of code. Longer genes can't execute as fast as short ones, so they tend to get weeded out. (*Whole Earth Review* #58)

Shockwave Rider Worm—Still the most sophisticated worm is the fictional one created by writer John Brunner in his novel *The Shockwave Rider*, which apparently was a major influence on Robert Morris Jr. Brunner's tapeworm ran loose through a computer network, gobbling up computer memory in order to duplicate itself—there was no stopping it. The worms were used by rebels to undermine a dictatorial government wielding power through a computer network:

And–no, it can't be killed. It's definitely self-perpetuating so long as the net exists. Even if one segment of it is inactivated, a counterpart of the missing portion will remain in store at some other station and the worm will automatically subdivide and send a duplicate head to collect the spare groups and restore them to their place." (John Brunner, *The Shockwave Rider*, Ballantine, 1975)

Worm watcher—A special program which automatically takes steps to limit the size of a worm, or shut it down if it grows beyond a certain limit. The worm watcher also maintains a running log recording changes in the state of individual segments. This information can be used to analyze what might have gone wrong with a worm. (John Shoch, 1980)

Worms are simple creatures: memory crunchers that rewrite themselves successively through the computer's memory. Almost any program can be modified to incorporate the worm mechanism.

Virus Remedies

As viruses have proliferated, so have vaccines and other remedies.

Viralarm System (Lasertrieve Inc., of Metuchen, NJ 201/906-1901)—consists of a special program to protect another program, creating a software barrier. The protection is available for individual personal computers and works for most operating systems now available.

Protec ($195.00 from Sophco. Inc., PO Box 7430, Boulder, CO 80306-7430; 800/922-3001) A system of programs that includes Vaccinate—a virus itself, which infects the host via the *Syringe* program. It warns the end user (the person using the program as opposed to the one who wrote it) if a virus infection has occurred. It also includes Canary, a quarantine program. When new files are imported from an unknown source, a user places the Canary program on a diskette with the suspect files. If the Canary dies, a virus program is present. *Protec* works on the IBM-PC family of computers.

Checksum—Commonly attached to the end of a program. Although not designed as a virus catcher, it can be used to see if the size of the program changes.

Ferret—Created by Larry Nedry and Scott Winders. Notifies an infected user of the date that the Scores virus installed itself. It's helpful in determining where/how the virus was picked up. *Ferret* is available on electronic bulletin boards such as CompuServe and MacNET. (*MacWeek*, April 26, 1988)

KillScores—Unlocks locked files, disinfects, and leaves files unlocked. (comp.risks May 11, 1988)

Vaccine—By Don Brown at CE Software, Inc., March 19,1988. It enables your computer's operating system to detect alterations to the code of your system files and applications. It requires your permission for any such alterations. If your system is already infected when you install *Vaccine*, there will be no warning from *Vaccine* that the virus exists. If *Vaccine* is installed on a sterile system and the Scores virus is introduced later, *Vaccine* will only warn of the virus attack; it will not prevent infection. *Vaccine* is available free on electronic bulletin boards such as CompuServe and GEnie.

Interferon—Written by Robert Woodhead. A shareware program that detects and claims to recognize "signals" that viruses give off when they are present, *Interferon* was intended to complement the *Vaccine* program from CE Software of Des Moines, Iowa. *Interferon* is available on electronic bulletin boards. (Woodhead is also the author of the commercial package *Virex*, published by HJC Software, P.O. Box 51816, Durham, NC 27717)

Softlog—(Asky, Inc., Milpitas, CA. Licensed to corporations in lots of one hundred units for $2,400.) Matches the current size of computer files against their previous size, and thus detects any unauthorized additional material.

Truss—For UNIX systems; it allows the system administrator to examine any process and observe the activities of any user logging in from a remote site. *Truss* attaches to a login shell (the part of the computer that handles the commands a user needs to log in to the bulletin board). *Truss* can also freeze a process and allow a debugger more detailed information about the errant process.

Data Physician—The grandaddy of virus remedies, on the market for three years. ($199.00 from Digital Dispatch, 1580 Rice Creek Road, Minneapolis, MN 55432; 612/571-7400) It detects and in some cases eliminates viruses. Makes careful measurements of a computer's programs and data files to detect any alien computer codes. It includes:

Data MD—One portion of *Data Physician*, which creates a list of computer data files to be protected and watches them while the computer is in operation.

Antigen—Attaches itself to an individual computer program and checks it for viruses each time it's used. To remove a virus, Antigen erases the bytes of computer data that weren't in the program earlier.

Padlock—Prevents anything from being written on a storage disk unless the computer operator pushes a button to give permission.

Data Physician works on IBM PC and UNIX systems.

Disk Defender—(mail orders: $199.00, Elek-tek, 6557 N. Lincoln Ave., Chicago, IL 60645; 800/621-1269) Director Technologies, Inc. developed this product, which write protects in hardware all or part of a personal computer's hard disk. This protects the operating system and commonly used programs from viruses.

Virus Rx—Developed by Apple (but sold through local dealers), this is a detection tool to determine whether a system has been infected by the Scores virus, and if so, which applications have been affected. It lists damaged applications, invisible files, altered system files, and altered applications. *Virus Rx* reports different levels of concern from simple comments to "dangerous," to "fatal." It first lists damaged applications–those that have not been infected by the virus, but will not work and should probably be removed. This program is available through Apple dealers, AppleLink, and through some user group bulletin boards.

Forgery Detector—Designers are now working on software that analyzes a program's style, in a similar fashion to handwriting analysis. It can then detect when "foreign" code is added to a particular program. It may also be able to determine the author of a virus. (*The Cincinnati Post*, February 1, 1988)

Pirate Detector Virus—This one keeps track of software duplication. It tells you how many copies of a program have been made, and alert you to illegal or viral program duplication. (*New York Times*, January 31, 1988) ■

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Viruses And The Software Industry

Anti-virus pioneer Michael Odawa on what developers can do to protect themselves and their customers

By Tony Rocco

Michael Odawa is president of the Software Development Council, an affiliation of local software trade associations. Considered alarmist by some and visionary by others, Odawa is attempting to help marshal the forces of the microcomputer software industry to eliminate the virus threat. Odawa's view is that viruses are an extremely serious matter, with potentially life-threatening implicatons. They're likely to become more of a problem as we become more dependent on computers, and viruses become more destructive and prevalent. Odawa, a veteran programmer himself, believes that a united software industry following the proper strategy, and specific laws making the release of a virus—any virus, "benign" or otherwise—strictly illegal, can defeat the increasingly serious virus threat. In this *MicroTimes* interview, Odawa discusses the SDC, the spread of computer bugs, and strategies he feels can successfully eliminate computer viruses.

For those who have never heard of the Software Development Council, what is it exactly?

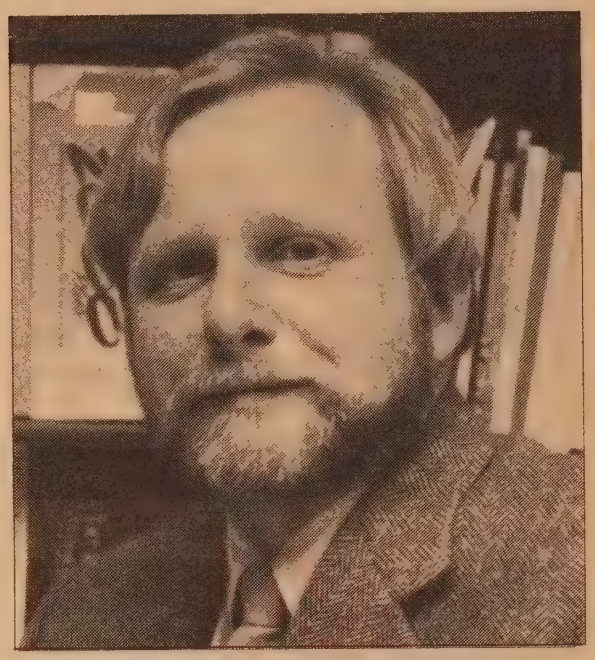
It is a confederation of six local software developers associations including SEF (Software Entrepreneurs' Forum) here in the Bay Area. We formed the council for the purpose of strengthening our local associations and providing communication between them. And for representing a voice of software development where it had to be represented. That particularly refers to the virus issue, which we've been active on since the very beginning. We formed as an official council only last May. So it's only been seven or eight months or so.

Where are we right now in the fight against computer viruses?

At the very, very beginning. People are still releasing these damn things.

We don't know how to fight them?

Well, we're learning real quick. There's a whole lot to learn. There are two things to worry about. There are the viruses that are already in circulation. You can clean off your hard disk, disinfect everything, and tomorrow catch another virus. These things are going to circulate over and over, we're not going to stamp them out. At least not for a long, long time. The other problem is future and potential viruses.



Software Development Council president Michael Odawa: "In order to get rid of viruses entirely we have to make a whole new generation of software that is resistant to viruses. And that, essentially, is the strategy of the SDC."

I don't think the word has gotten out to people how serious viruses are. I think there still are some nitwits running around who don't understand how serious these are. Well, like this guy who released the worm in ARPAnet. From what I hear he seems like a really decent human being, but the guy just doesn't have any brains at all.

Does anyone know why he did it?

Some people have suggested it was to tell people about holes in security. That's an incredibly naive motivation. There's all sorts of holes in security. You can spend the rest of your life telling people about holes in security. There's no big deal that there's a hole in security. Particularly in UNIX. The security in UNIX is like Swiss cheese. There's no security at all. It was not intended to be a secure system.

What are some theoretical strategies for defeating viruses?

There's a couple of things, a couple of levels. You can take a number of measures to avoid viruses. And one of them is to run something like *Vaccine*.

How effective are Vaccine and other similar programs?

Moderately so. It will be effective until somebody writes a virus that defeats it. I don't know how far this medical analogy goes, but as you use more medicines, you develop strains of disease that can resist them. Likewise, as you use things like *Vaccine* and other programs, then potentially viruses get written that can defeat them. As long as you've got people with the motivation and stupidity to write viruses, you've got an almost infinite supply of them.

So, you're not hopeful of finding a software solution to defeating viruses?

In order to get rid of viruses entirely we have to make a whole new generation of software that is resistant to viruses. And that, essentially, is the strategy of the SDC. It's sort of innovative, in a sense. Most people look at the fact that you can have this infinite escalation of vaccine resistant viruses. They just get grossed out by the fact that there's no winning an arms race.

We've taken a different look at it and we say that there's something else that's necessary for a virus to succeed, and that is propagation. A virus has to travel. It has to jump from one program to another. The only way it can do that is if it can successfully grab a hold of a program and travel with that program. So what we're developing is programs that can't be grabbed a hold of.

The way we're developing programs that can't be grabbed a hold of is that programs with this strategy will check themselves over before they run. It's like getting up in the morning and you count your arms and your legs. Are my parts here? Yeah, everything's here. Is there anything clinging to my body that doesn't belong there? That's what our software will do. It will check around and will see whether not anything is clinging to it. And if anything is clinging to it that doesn't belong there, it will notify the user. That way, we hope to cut down on the propagation.

What we have today, because this problem is fairly recent, is an environment that is conducive to viruses. And we just want to make the environment not conducive to viral communication.

Will applications be able to rid themselves of the viruses?

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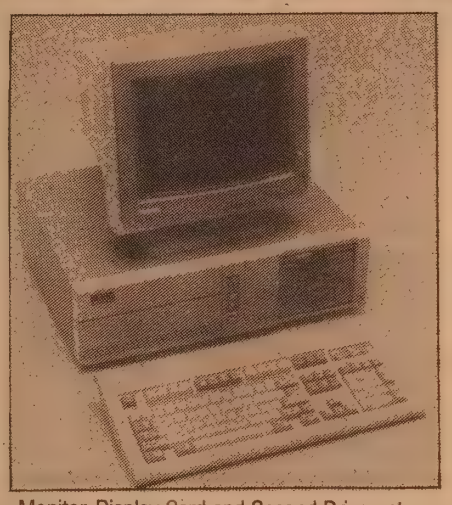

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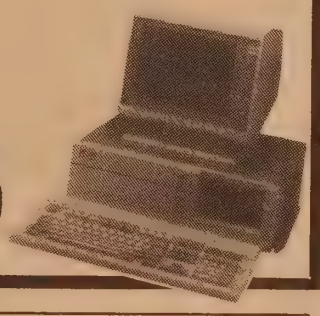

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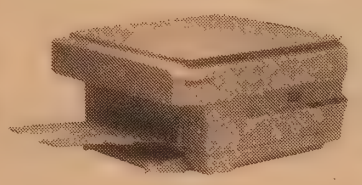

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You'll have to have some sort of medicine software that runs through your hard disk and gets all the viruses. Chances are, if one application is infected, they all are, or most of them are. Like the nVIR virus. It propagates by leaving nVIR resources in all the applications. So what this medicine software has to do is go into all the applications and take out the nVIR resources. I know of several companies that are developing software along those lines, that will do the clean up work.

What are the chances of a virus coming along that can elude detection by an application designed to check itself out?

It's theoretically possible. But what we're doing has another twist to it. We're not using the same method on every application. As a matter of fact, every application will use a different method. So you can come out with a virus that might affect one program but not others. That will cut down its ability to propagate very seriously. Let's say a virus can infect the program XYZ but no other programs. OK, it will infect XYZ. But it won't go very far very fast.

The other thing is, if it infects XYZ, once you run program ABC, ABC is going to notice that it's there and tell you about it. So you'll get protected. Even though you might theoretically get by a single application, because everybody runs three or four applications or more, and they'll all be using different methods to check, one of them is going to find it.

We can come up with a pretty good means of defeating viruses that way but no means of defeating viruses that is absolutely foolproof. Because of that we have another tactic that we're using. We are actively trying to publicize among programmers what are the negative aspects of viruses; how there is no virus that is benign, there's no virus that's really a message of peace. There is no such thing as a virus that's a message of brotherhood.

How far away are we from seeing applications that are virus resistant?

Virus resistant applications will be on the market the first or second quarter of '89. We may not publicize the fact that they're virus resistant.

There won't be some message in big letters on the box?

We haven't decided about that. There are arguments pro and con. It will provide a challenge to the SOBs that write viruses (to let them know the application is virus resistant).

They'll find out eventually, though.

This is a group decision thing. We've debated it back and forth and haven't come up with an answer. Chances are we're all going to come up with an answer. Either we're all going to advertise it or we're not going to advertise it.

Have there been problems in getting the cooperation of people in the software industry in fighting viruses?

Believe it or not, there are still people in this industry who don't realize how serious this thing is. There really are. I know it's serious because I talk to users all the time. Users are real serious about viruses. People in the industry tend to be more computer knowledgeable and they say, "Well, it's a pain in the butt, but it's not a very serious thing." Frequently, I'll call someone up one week and they'll say, "Well, viruses, they're not very serious." And then the next week they'll call *me* up and say, "We changed our mind, viruses are real serious. We got hit with one." (Laughs.) They're never real serious until they hit you and then suddenly you begin to see how important they are. This is an epidemic. It's real serious.

Another problem is that a lot of people don't understand that there's something they can do about it. A lot of people in the industry don't understand that there is a reasonable technological approach to take. They look at the fact that you have this infinite escalation and they freak out and say there's nothing you can do about it.

Substantial people in the industry, people whose names would really impress you, really, in private, freak out about viruses. Yet in public they're trying to downplay it because they don't want to panic anybody. But, frankly, they don't know what to do about it. My job is to get word to them that we have a solution. So part of the challenge is to get the word out to other people in the industry that there is a way to fight viruses.

Is it overly optimistic to think, then, that if we implement a few simple strategies, in another year or two we won't even be talking about viruses anymore?

If what we're doing is successful, maybe a couple of years from now we will have done away with the problem of viruses. I sure hope so. I think it's going to take action on two or three fronts. One is the technological solution. The other is the political solution.

You've gone on record saying, "Release a virus, go to jail." What laws and penalties would you like to see?

There are some state criminal laws regarding unauthorized access to other people's computers that could be used by a very aggressive prosecutor to put somebody in jail. We don't think that's sufficient. We think that there should be a statute very specifically singling out viruses, saying if you release a virus there are going to be criminal penalties.

Most statutes have focused on the specific damage that's been done. I think that even something like the Peace virus should have a criminal penalty. Even though you can't say that a certain amount of files were damaged, the fact is that releasing a virus by itself is creating an epidemic. Even if a person is too stupid or naive to understand the consequences, it's a malicious act that should be singled out.

Is the SDC lobbying to get these laws written and passed?

Yes. On the state and national levels.

How severe do you want to see the penalties? Why shouldn't they be tied to the amount of harm caused?

We use computers in medical applications, we use computers to monitor people's heart beats. Viruses can kill. When you go through the act of releasing a virus, you have absolutely no idea how much damage you're going to cause. It could be a lot or it could be very little. It's the act of releasing the virus that has the maliciousness, the damage it has is purely an effect of chance.

For instance, take the MacMag virus. Everybody says, "Oh, what a benign virus." One of the things the MacMag virus did is it added extra cycles to the computer, to the program that it sandwiched on. It ran on the system file and each time the computer was run, it consumed extra compute cycles. When you write real-time software that is used in medical applications, let's say to monitor people's heart beats, timing is very, very critical. People who write this software actually count compute cycles. If a virus gets in there and adds compute cycles, it can screw up a whole real-time application.

Again, releasing a virus is real, real serious even if you have no intention of causing someone's death. You also have no way of knowing whether that virus will result eventually in someone's death. Anybody who releases any virus should spend some time in jail.

How have legislators been responding to this? Have they been receptive?

It makes sense to them. We're real hopeful that a consensus will be reached.

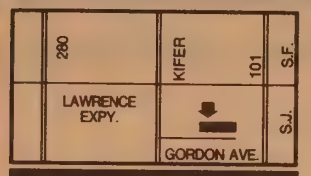
Until these legal and technological strategies are implemented, what can you tell people to do right now to protect against viral infection?

Everybody should have something like *Vaccine*. Use it all the time. I wouldn't advise that you protect yourself by just buying shrink wrapped software. Frankly, some of the best software I have I downloaded from the WELL. I'm a big believer in shareware and public domain software. We think it's inappropriate to scare people into using just shrink wrapped software. People who do shareware have known methods to fight viruses. I've downloaded an awful lot of stuff, and run a lot of programs and I've never caught a virus that way.

Run some antiviral program and use it all the time. Pay attention to the specific virus that each product protects against and have enough products around that you can protect yourself against a variety of viruses. Another thing is to keep your files backed up and your master copies of every program in a safe place.

Be prepared that despite your best efforts you may become infected. Be prepared to wipe off your hard disk. Be prepared for the worst. We haven't won this fight yet. (Software Development Council of North America, P.O. Box 61031, Palo Alto, CA 94306, 415/854-7219.) ■

computer viruses a special report



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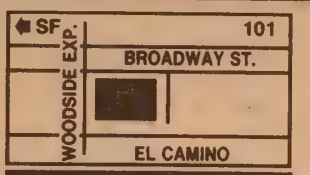

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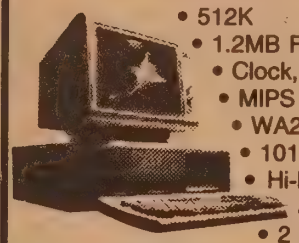

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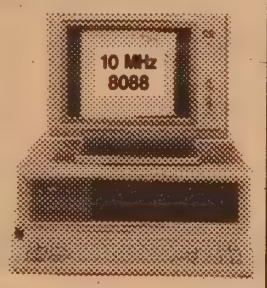

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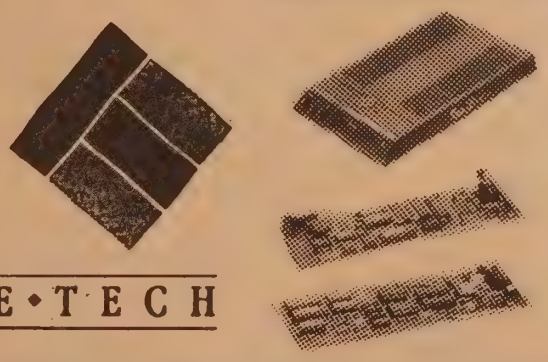

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Viruses: The Long View

By Birrell Walsh

There was Dan Rather, talking about the DARPAnet virus on the CBS evening news. It didn't take long for a computer specialists' in-joke to become a national story.

Most of the media tend to handle such stories in one of two ways.

Some will say "Hackers Tangle Networks: Isn't It Cute?" The thrust being that since no one likes computers, it's just as well to have some modern Luddites mucking about. Or they will say "Terrorist Hackers Tangle Networks; World Will Soon End." This is more like our sense of the matter: one really good virus, well-placed, could eat its way through a whole financial system. Or a military system. It would not take too many of viruses before the whole computerized West would grind to a halt.

There are other ways to think about viruses. Since we work with computers, it falls to us to find those long-term views (if only to entertain people over coffee or cocktails). I think that we could defend four ideas, each more outrageous than its predecessor:

- Viruses will sell "object oriented" programming.
- Some viruses will be useful.
- Viruses will *not* be defeated, but the effort will educate us.
- The oddest speculation: Computer viruses really are a form of life, and this era will be remembered for their appearance.

"Viruses Will Hasten The Conversion To Object-Oriented Programming"

"Object-oriented" systems are those that use the metaphor of objects which communicate with each other. This is opposed to most languages' metaphor of a single servant (the processor) which gets meticulous instructions (the program) and then carries them out, line by line.

Computers don't care whether they have an object-oriented system resident in them or not. Humans like the metaphor because it is easier to think of interacting objects than one massive set of instructions. Since humans are "the environment" to computers, the way we think and what we like are what computer systems must serve in order to survive.

Object-oriented systems treat all incoming data as messages to be responded to or not. The objects' own internal processes are hidden, and they reveal information only to someone who has the correct password—a message for which they have a "handler," in the jargon. That "someone" is not necessarily a human, but may be any other process in the system. No one can obtain the cooperation of another object unless they send the correct message. That means object-oriented processes are already equipped with a sort of filter—or immune system—to reject entry.

If chemical viruses are "life" because they are self-replicating systems, then what else can we call computer viruses?

System managers will hear that with glee. They were already leaning toward object-oriented languages because of their conceptual simplicity. As isolation and separation become key issues, they will quickly turn to languages which already have separate, "defensible" data and program structures.

"Viruses May Be Beneficial As Well As Harmful"

Viruses in nature and viruses in computers have ominous reputations. An infected organism is generally turned to the service of the virus, and its own purposes are subverted. A cell which is taken over by a virus and eventually burst by its progeny is doomed.

Some viruses have taken a milder route to survival. Instead of destroying the cell they invade, they simply become part of it. They are reproduced by the cell when the cell reproduces itself. They do not take over the mechanism entirely and reproduce wildly. Instead, they coexist.

A number of those who have written computer viruses have used them for friendly message passing. A virus that was distributed with a few copies of Aldus *FreeHand* flashed a peace message on March 2, 1988. The message was harmless—beneficial, even—except for the cold chill it gave the people at Aldus when they thought about someone invading their software.

There are other kinds of benefit possible. Organic viruses can carry necessary genetic information to the cells they infect. One early experiment with the (biological) "T-2 phage" virus demonstrated the viral transport of useful genes. Some bacteria were unable to survive for lack of one gene. Viruses carried the needed genetic material through a ceramic filter and "infected" the cells at the other end with the needed gene. Thereafter the bacteria were able to survive and reproduce.

Some years ago, Swedish radio amateurs at Linkøping University designed an intelligent packet system. "Packet" systems break a message into chunks, each of which has an address on it. The message units can be sent by different routes (through repeaters which use the addresses to forward the packets) and reassembled at the receiving point. Utilizing the Forth computer language, the Swedes designed a system in which the packets carried more than data and an address. Each packet had a data segment at the end. At the head was a Forth program, not a simple destination code. Each repeating station treated the incoming packets as programs to be executed. In many cases the packet did what viruses do: the instructions said, "Make many copies of me and distribute them." Other programs were more complex. But the packet system used the virus model (under another name—the word virus was not common then) for beneficial purposes that were not possible otherwise (See *Forth Dimensions*, January/February 1985. You can contact a Forth Interest Group through the "User Group Network" in *MicroTimes*).

What could beneficial viruses do in a computer system? Will we soon see updates for programs distributed by virus? All you will have to do is run the "Update.com" file that is on some network of

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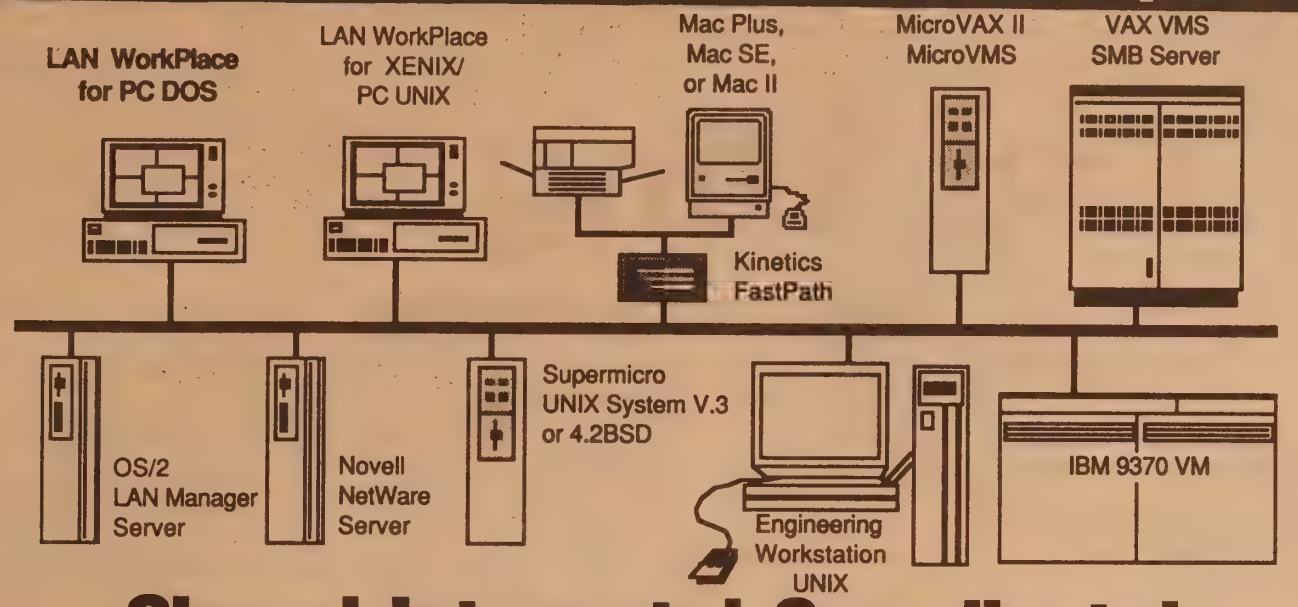
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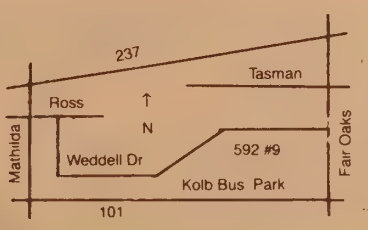

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the future, and applications will be brought up to the current version.

Another application would be in the prevention of viruses. There are virus-preventing programs on the market already called "vaccines." What better way to distribute them than by virus? Because the distributor is itself a virus, it will be rejected by operating systems which have a vaccine: The only systems to take up the vaccine will be those that do not already have it.

As Nancy Grant points out, computer viruses may serve us by providing a model for organic viruses. In investigating that which infects machines, we may learn how to vanquish that which infects us.

"No One Will Ultimately Defeat Viruses, But The Attempt Will Increase Knowledge"

Our own immune systems develop from the struggle against attempted invasion. In the intellectual struggle against organic viruses we have increased our knowledge of molecular genetics. We have learned how cells do and do not work to a degree we would never have achieved without the desperate need to conquer viruses. Viruses cannot be understood at all without understanding how the cell works at its most intimate levels.

Computer viruses are having the same effect. Few of us thought about the date and size of files until we read that crude viruses often change one or both of those characteristics. And as our awareness is raised, the awareness of the virus-combatters is

What could be as important as the emergence of a whole new kind of being? Our descendants may remember this as the age when software came to life.

raised even more—and so is the skill of the virus-creators.

To have a final victory against viruses you would have to have a system that did not respond to external messages. The computer would be defended—and useless. Useful systems will continue to admit messages from the outside. Some communications will be viruses. And some of those will succeed.

The battle against viruses so far has had a paradoxical effect: the viruses are stronger, and people who never thought of the matter have started designing them. This kind of arms-race is reminiscent of the "You can't break into my system"—"Oh, yes I can!" battle of the flu virus and vaccine developers. The best designers in the business work on each side. You get rapid technical progress—and no final victory.

"Computer Viruses: The First Occurrence Of Non-Organic Life"

The degree of complexity and independence of computers will increase. In fact (by prediction 3), the complexity will speed up *because* of the appearance of viruses. The struggle between virus-makers and those who try to defeat them will result in larger and more sophisticated programs. These programs are not the life in computers, however. They are simply the rich soup in which that life moves.

Complexity in the environment is a precondition of life, but not sufficient in itself. One other thing is needed. To quote from Richard Dawkins' beautiful book on evolution, *The Blind Watchmaker*:

> *Ezekiel called upon the four winds to put living breath into the dry bones. What is the vital ingredient that a dead planet like the early Earth must have, if it is to have a chance of eventually coming alive, as our planet did? It is not breath, not wind, not any kind of elixir or potion. It is not a substance at all, it is a property, the property of self-replication. This is the basic ingredient of cumulative selection. There must somehow, as a consequence of the ordinary laws of physics, come into being self-copying entities, or as I shall call them, replicators. In modern life this role is filled, almost entirely, by DNA molecules, but anything of which copies are made would do...*
>
> *Each replicator, then, has copies of itself made. Each copy is the same as the original, and has the same properties as the original. Among these properties, of course, is the property of making (sometimes with errors) more copies of itself.*

Replication is the critical condition which has finally been met by computer programs. In viruses we have programs that reproduce and distribute themselves. Organic and computer viruses both depend for their success upon the "hijacking" of complex working machines. If chemical viruses are "life" because they are self-replicating systems, then what else can we call computer viruses?

Can life be in mere silicon? Legend says that that was Satan's protest to God—How can spirit be in mere hydrocarbon? We could make a similar denial and say "It can't be alive *because* it's taking place in sand instead of an organic soup." That would be begging the question.

We are in a situation like that of Einstein. Einstein noted the many similarities between the force of gravity and the force of acceleration. He postulated a closed room, and an observer inside it. He concluded that an observer confined to that room (unable to see if there is a planet or a rocket outside) would not be able to distinguish between a room experiencing a 1-G gravity acceleration and a room being accelerated on top of a rocket. Einstein formulated the indistinguishability as an Equivalence

We can make a telling analogy here: Imagine an observer, to whom the behavior of biological and computer viruses is described without any way to know if the creature is molecular or electronic. "It takes over a system and forces that system to make multiple copies of itself and distribute them," and so on. Will the observer be able to say whether the virus described is biological or not? I would say, "No."

Principle: "We...will therefore in the following assume the complete physical equivalence of a gravitational field and of a corresponding acceleration of the reference system." (quoted in *Gravitation* by Misner, Thorne & Wheeler).

We can make a telling analogy here: Imagine an observer, to whom the behavior of biological and computer viruses is described without any way to know if the creature is molecular or electronic. "It takes over a system and forces that system to make multiple copies of itself and distribute them," and so on. Will the observer be able to say whether the virus described is biological or not? I would say, "No." The virus in the computer is (at least formally) indistinguishable from the living, organic virus. We can make an equivalence principle that identifies self-replicating systems, whatever their medium. A virus is a virus is a virus.

Computer viruses are frail, vulnerable to detection and vaccine, but they are reproducing in systems far from their "home." They have gone wild, like the first few self-reproducing organic molecules. What could be as important as the emergence of a whole new kind of being? Our descendants may remember this as the age when software came to life. ■

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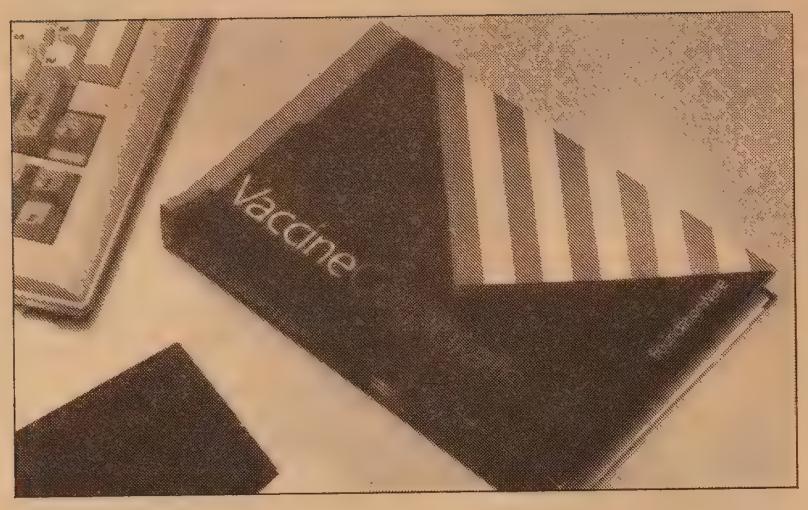

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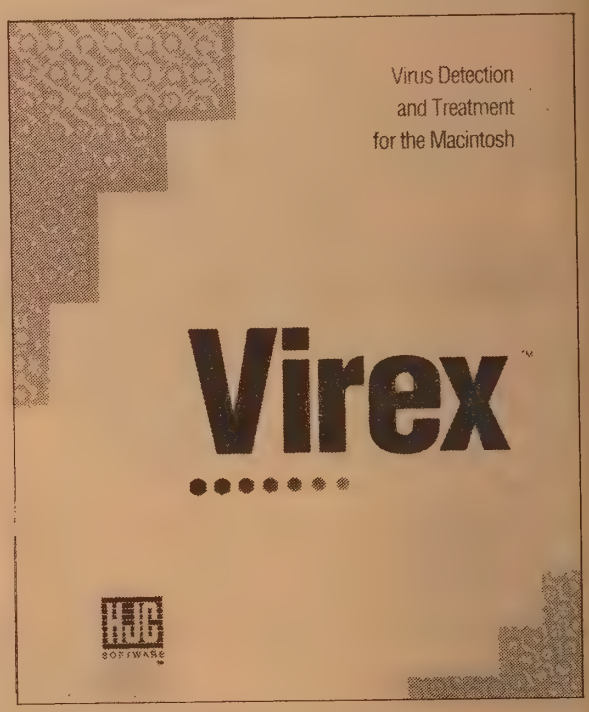
OnGuard prevents C drive access through the A drive, provides optional file and directory passwords, tracks authorized and unauthorized access, and can overwrite a file with zeros before deleting it. ($295) United Software Security, Inc., 8133 Leesburg Pike, Vienna, VA 22180. (703)556-0007.



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Getting More Power From Laptop Computers

By Wayne A. Yacco

Many users already have older machines that are ready for a life saving transplant. Other users are finding that the easiest way to get into the laptop game is by buying an older unit, either used or liquidated. A lot can be done with those machines, given the right accessories and software.

Little computers are getting to be big business. According to some reports, laptop computer sales are doubling each year. It's quite possible that laptop portables may begin to replace larger stationary machines in some applications. Compaq's newly announced SLT, the NEC ProSpeed 386, and others have designs on the desktop. Those machines have connections that can be attached to docking stations on the desktop. They give their users most of the features of a typical stationary machine, including connectors for adapters, without sacrificing portability.

But, at any particular time, most of the laptops in use are representative of a slightly outdated technology. Each new generation of machines is lighter and more feature-filled than its predecessor. So, as they grow older each year, the base of installed laptops is constantly becoming more outdated.

While the newest laptops may have advantages over the ones that were sold last week, however, users don't need to turn their classic machines into paper weights, door stops, or boat anchors just yet. There are ways to get those reliable old machines working better than ever. Even their working weight can be reduced. Here's how.

Unless you're willing to sacrifice some essential part, bulk or weight reduction is usually limited to the accessories that are carried with your machine. But that can result in some significant savings. Since laptops ultimately must derive their power from the software they run, reducing the bulk of software effectively reduces the weight of the system. Taking along all of the disks and documentation included with four or five major packages could easily outweigh the hardware several times over.

Power Through Software

Selecting the right software can benefit laptop users, particularly the users of earlier models which don't have hard disks, powerful processors, or full 640 K memories. Programs like Microsoft *Works* and *WordPerfect Executive* have a broad range of integrated capabilities; not only can they run on smaller machines but, for most field work, can replace larger and heavier collections of programs. Naturally, the features are somewhat reduced in these programs when compared to their larger counterparts. For example, *WordPerfect*'s ability to recover from mistaken deletions with the F1 key is absent from *Executive*'s word processor. Still, these programs are generally more powerful than the built-in software that is provided in the ROM of some machines.

A second major benefit users get with these packages is an interface which is roughly or nearly identical to one that they already know. The similarity is strong enough to essentially eliminate the need for training and the carrying of extra documentation.

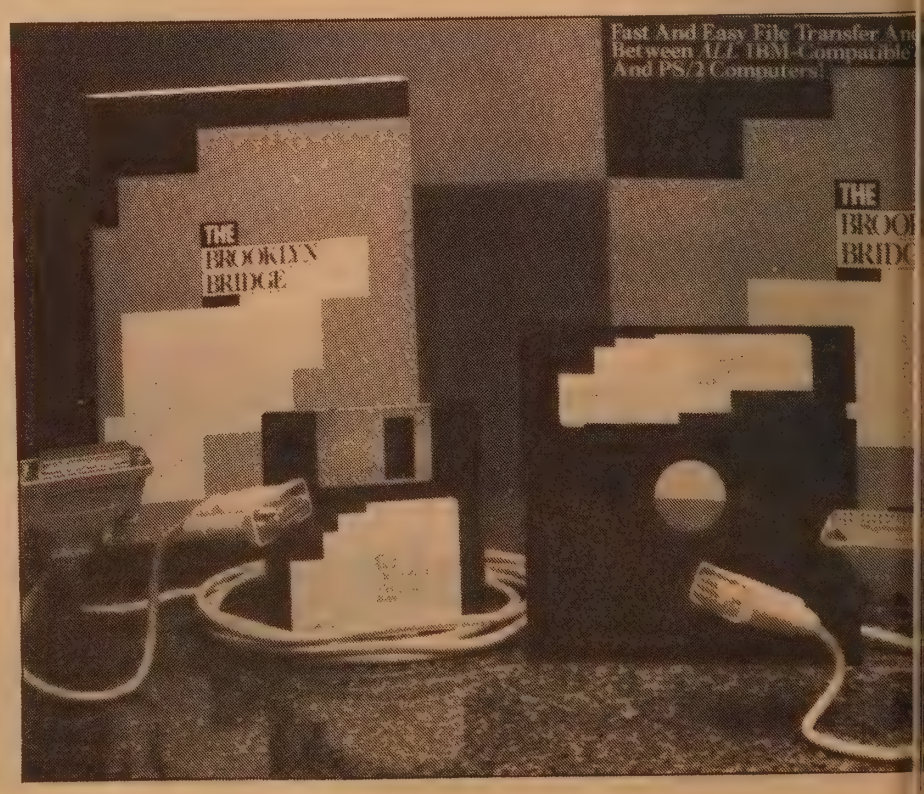
The cost of these packages is fairly reasonable. At $245, the price of *Executive* is a small fraction of what it would cost to buy all the WordPerfect products from which it incorporates features: *WordPerfect*, *PlanPerfect*, and *Library*, plus some desktop utilities and communications. (I suspect, though, that WordPerfect president Alan Ashton's personal copy of *Executive* has the undelete capability restored.) *Works* is just $149 for word processing, spreadsheet, database, and communications capabilities. The spreadsheet is very similar to *Excel*, and the word-processing features should be reasonably familiar to users of either Microsoft *Windows Write* or Microsoft *Word*, although it isn't quite like either.

Software that runs on floppy-based laptops is not restricted to packages with limited capabilities. However, the same features that give large packages their power tend to make them run slowly from floppy disks, especially when frequent disk changes are required. An acceptable response time may also require more processing power than an 8088-based machine can deliver—and processors can't be upgraded in any of yesterday's laptops.

The spelling checkers and thesauruses that accompany products like Microsoft *Word* or *WordPerfect* are examples of such useful but cumbersome features. Many users will find it preferable to choose a word processor without a built-in thesaurus and carry a stand-alone electronic thesaurus instead. For example, the *WordFinder Dictionary-Thesaurus* from SelecTronics offers a large Thesaurus/Dictionary that perfectly complements a program with only a small built-in dictionary. The $100 device weighs just a few ounces and fits enough ideas into a shirt pocket to make carrying it really worthwhile. It is also ideal for spelling the occasional word that smaller checkers miss, or for overcoming the lack of page or individual-word checking in programs like Microsoft *Word*. Having to re-enter words using its QWERTY keyboard is a slight disadvantage which is more than outweighed by the ability to use it with or without a computer.

Connections

It is also possible to harness the power of most desktop computers with just about any laptop, even if it doesn't have its own docking stations. Traveling Software offers a line of software products that connect laptop and desktop machines to each other over standard RS232 serial ports using a null-modem cable. This allows computers to communicate



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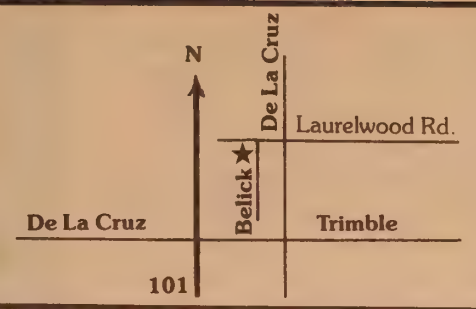

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Hardware Upgrades

Most of the upgrades that increase a laptop's power are hardware revisions or additions. One way that laptop hardware can be upgraded is with expansion memory. Extra memory is often used by laptops to provide RAM disks which can replace a missing internal drive. The 768 K memory upgrade ($399) for the Toshiba T1000, which can only have a single internal drive, is designed for use as a virtual disk and includes battery backup to keep its data from being lost during a reboot. Because electronic disks weigh less, take up less physical space and don't require cables (like external drives), they are ideal for machines that must travel. Their biggest disadvantage is eventually you'll have to take the time to move their contents to a physical diskette.

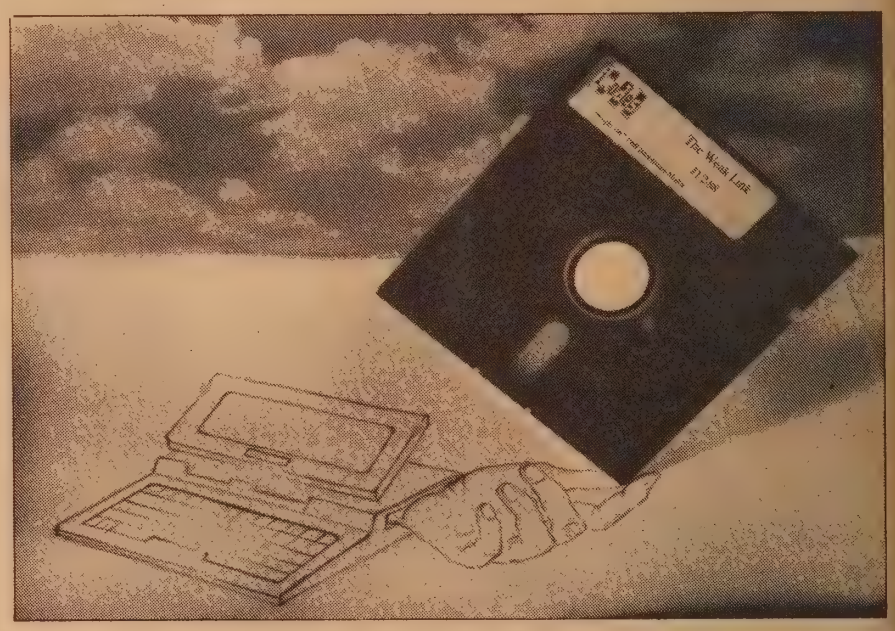
Some upgrades will overcome limitations that are built into laptops to save space and weight. For example, laptop keyboards often omit a separate keypad in their quest for minimalism. Instead they provide a function key that maps the numbers onto some of the alphabetic keys. It works but it isn't very ergonomic. External keypads can make it feasible to productively input large amounts of data.

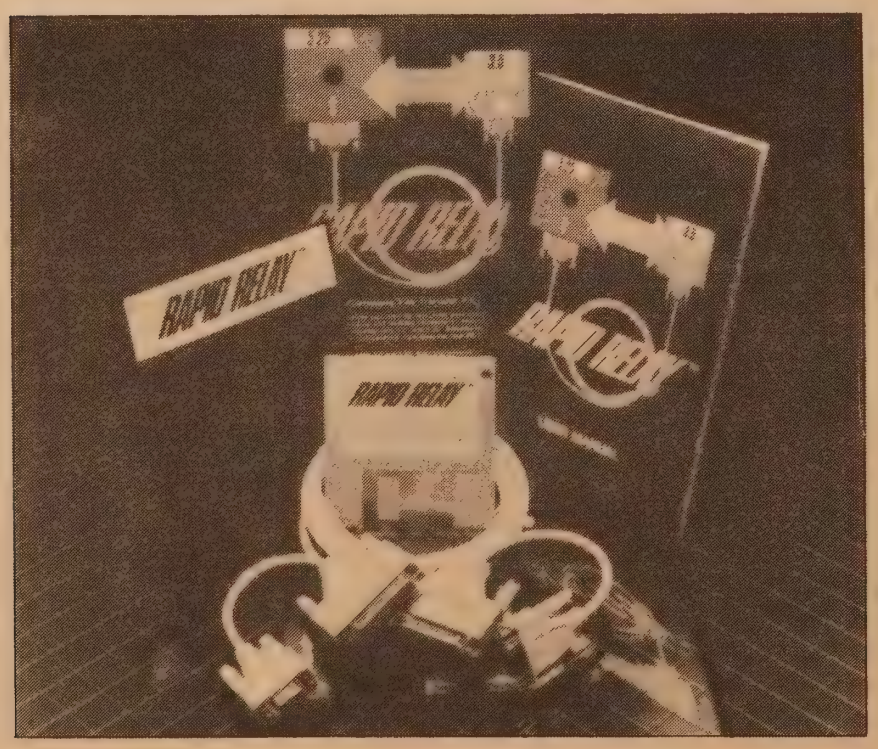
One of the most significant limitations in early laptops was the display. Later versions solved the problem with super-twisted crystals and/or backlighting. The original NEC Multispeed is an example of a laptop that had a reasonably good twisted-crystal display which can be upgraded with an even better plug-compatible electroluminescent replacement.

Replacing the display on the Multispeed is as simple as snapping off a cover, squeezing two releases and pulling out the display's connector. A single flat cable must also be disconnected. Once the old display is removed in this manner, the new display is installed by merely reversing the procedures. Although there are some slight differences in the ing characteristics, C-MOS is also significantly more susceptible to damage from static electricity than the parts most of us are used to handling.

Furthermore, some upgrades like the Multispeed's EL display have required professional service even though the machine remains closed. According to NEC, that's because early versions of the Multispeed had 1.0 amp power supplies that can't serve the backlight. They need to be replaced with a 1.5 amp version. It is possible to order the screen and do it yourself if your Multispeed has the larger power supply that was shipped with later serial numbers.

The Multispeed can also be field upgraded by the user who needs a modem. Even Multispeeds that were originally ordered with 1200 bps modems can benefit from the faster 2400 bps model which came later. To install a modem in the Multispeed the user only needs to snap a small cover plate off of the left side of the unit. The cover has two knockouts for





connections, they are completely compatible. The new screen weighs slightly more and dramatically reduces the time that the machine will run on its batteries. Also, it costs $499. But the benefit is a laptop that is much less fatiguing, and more productive, under most lighting conditions. With the upgrade, the Multispeed can also be used in poor lighting for the first time.

Upgrades which require equipment to be opened often must be installed by the vendor or the vendor's authorized service centers. Upgrades for the T1000's memory or modem fall into this category. There's a good reason why manufacturers don't want most users working inside their machines. Most portable machines use C-MOS parts rather than the more power hungry N-MOS used in the average desktop system. Aside from having different operat-the modular telephone connections and volume control. The knockouts are easily broken and removed. The modem slides into the unit until it engages its connectors, and then the cover is replaced to complete the job. The 1200 bps modem sells for $399 and the 2400 bps model for $499. Toshiba's original 1200 bps modem for the T1000 ($299) will also have a 2400 bps replacement ($399) in February.

Third parties are also offering hardware upgrades for laptops. One of the most desirable is a hard disk. Because of space limitations, these products typically must replace one of the internal floppy drives on a two-floppy system. And, because of space or power limitations, not every laptop may be able to accommodate a hard disk. The T1000, for example, has room for only a single drive. The NEC UltraLite, Cambridge Z88, and others

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FCC Class B approved

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TIME MAGAZINE January 30, 1989 — page 53. News Item!

"A Little On The High Side"

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Time, January 30

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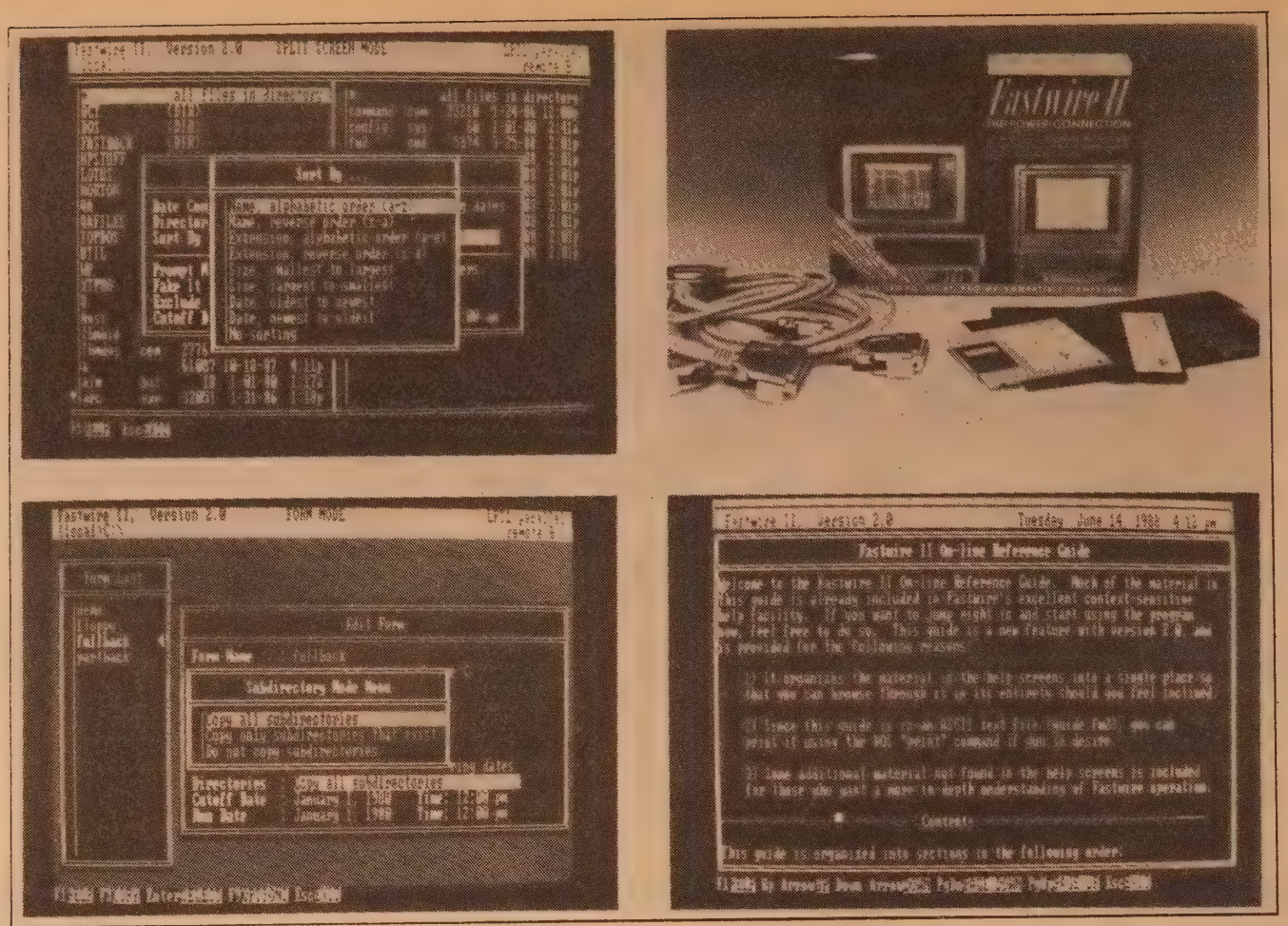

have no drives whatsoever.

CMS produces its 20 Mb LiteDrive hard disks for two laptops: the T1100 Plus and the Tandy 1400 Lt, LiteDrive. Both list for $1000 plus installation. The controller for the LiteDrive takes up the machine's modem/expansion slot, so users must use an external modem with these options.

There are also some upgrades that are difficult or nearly impossible to obtain. The Sharp 4500 series laptops, for example, are promoted as having the ability to store programs in EPROM. That saves memory, leaves more room for on-line data in the floppy drives, and lets applications start running faster.

However, it can be unreasonably difficult for the user to have software installed in the EPROMs. Sharp doesn't want its users to do this for themselves although EPROM burners are inexpensive, widely available, and easy to use. Instead, the user is expected to turn to the dealer who sold the machine. That's usually acceptable for users who purchase their machines locally, but can be an onerous task for mail-order buyers.

Sharp laptops are widely sold through heavily discounted direct-mail offers. The mail-order buyer may be expected to send fragile and expensive software to a dealer who could be less than enthusiastic about burning in a package that was purchased elsewhere. Sharp enforces this policy by withholding the necessary documentation from the end user of its laptops.

Another example is a replacement for the 720 K drives that came with many laptops. Replacing 720 K drives with 1.44 Mb drives would effectively double the storage capacity of a laptop at a very low cost. Some machines that run versions of DOS above 3.1 could already support 1.44 Mb drives. However, the compact interiors of laptops require replacements to have their connectors in exactly the same locations as the original drives. Likewise, faceplates are not usually interchangeable. So a replacement drive is essentially limited to one with precisely the same exterior design as the one being replaced. Worse, laptop drives may have unique designs that are unavailable in a high-density version.

For the user, upgrading a floppy drive will probably mean searching for the drive on a hit-or-miss basis with some chance that there won't be a replacement at all. The vendors who manufacture the drives may feel that they owe their first allegiance to the OEM customers who buy their drives. The number of drives they would sell couldn't begin to compare with the business they do with NEC.

Fortunately, the majority of desirable upgrades are available and more are coming. Nearly every laptop will be a candidate for at least one eventually. Laptop features due in the near future include high-resolution color-LCD displays, two-inch hard-disk drives, 3.5" floppy disks with 20 Mb capacities, SCSI ports, and built-in cellular-phone modems. There may even be a version of the Private Eye for laptops. That's a still-experimental display device which weighs about two ounces and is held in front of one eye by a headband. Its high-resolution images appear to be floating in space a foot or two in front of the user. And the user can see the image while coordinating the movements of hands, keyboards and pointing devices. Some or all of these are sure to be available as upgrades.

Many users already have older machines that are ready for a lifesaving transplant. Other users are finding that the easiest way to get into the laptop game is by buying an older unit, either used or liquidated. A lot can be done with those machines, given the right accessories and software. ■

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Resources

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(713)370-0670

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(PC Hooker Plus)
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Sharp Electronics Corporation
Sharp Plaza
Mahwah, NJ 07430
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- 8-8 Bit Expandable Slots

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• 286-16 MHz Basic System w/40MB Seagate Hard Disk	1350	1511	1751	1859
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80286-12	225	200	Call
80286-16	350	320	Call
80386-16	780	690	Call
80386-20	900	820	Call

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Seagate ST 225 20MB (65MS)	$205
Seagate ST 251-0 40MB (39MS)	335
Seagate ST 251-1 40MB (28MS)	395
Seagate ST 4096 80MB (28MS)	580
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Maxtor 120MB (25MS)	1275
Maxtor 160MB (28MS)	1305

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Goldstar Mono Amber 12″	75
Goldstar RGB 14″	230
Goldstar EGA 14″	340
Goldstar VGA Mono	128
Goldstar VGA	385
Goldstar Superscan	495
Samsung Mono Amber	78
Samsung RGB 14″	235
Samsung EGA 14″	347
Samsung VGA 14″	380
Samsung Syncmaster	490
NEC Multisync II	595

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Epson FX 1050	530
Epson LQ 500	334
Epson LQ 850	577
Epson LQ 1050	799
Epson LQ 950	559
Panasonic 1091i	185
Panasonic KX 1180	185
Panasonic KX 1191	249
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FLOPPY DISK DRIVES

Teac 1.2MB Floppy Drive	82
Teac 360KB Floppy Drive	63
Teac 3.5″ 720K Floppy Drive	75
Teac 3.5″ 1.44MB Floppy Drive	89

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Gold Star 1200B (INT)	89
Pocket Modem 1200B	79
Everex 1200B (INT)	69
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Color Graphics card w/PP	42
Everex EGA w/o PP	145
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K 156 Keyboard	45
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- Dual HD/FD Controller Card
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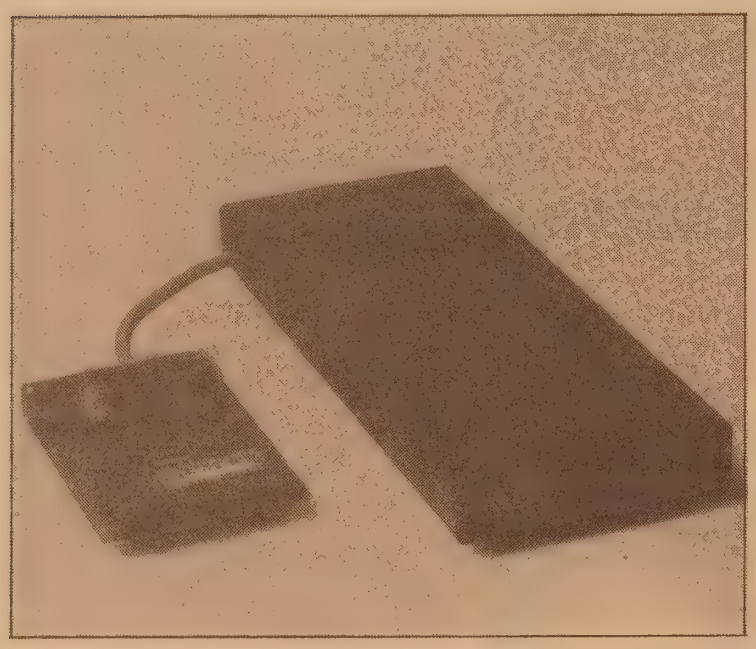
LAPTOP BUYERS GUIDE

Laptop Survival Kit Guarantees Trouble-free Computer Operation

On-the-go computer laptop users will find this toolkit a useful addition to their laptop accessories. Electronic Specialists' Laptop Survival Kit includes an AC line filter/suppressor and an RFI/LFI filter/suppressor. Also included in a durable plastic container are an assortment of adapters, tools, and cables including screwdrivers, a clip lead modular connector phone tap, an RJ-11 "tee" adapter, a 25-foot modular type phone extension cord, an AC power two-prong to three-prong adapter plug, and an AC power triple tap outlet adapter. ($149.95) Electronic Specialists, Inc., 171 S. Main St., Natick, MA 01760. 1-800-225-4876.

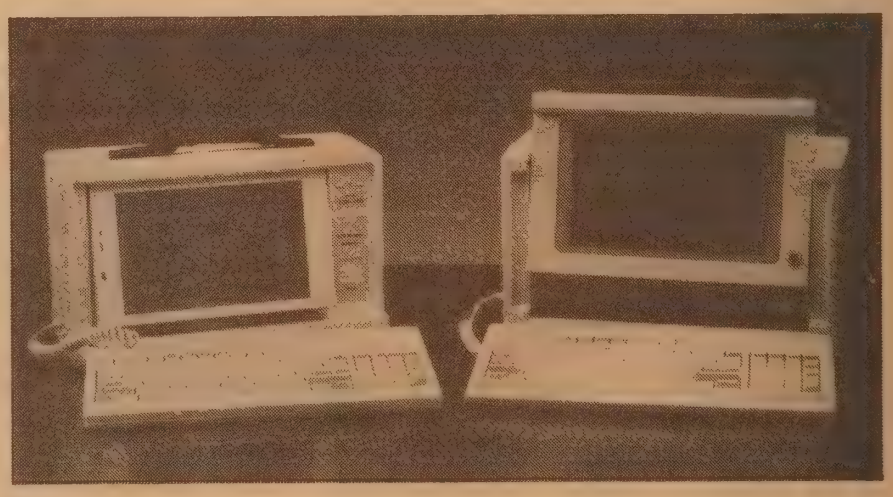


New Expansion Chassis Improves Laptop Portability

Ogivar Technologies, Inc. has introduced a new lightweight expansion chassis for its popular 286 laptop, thus making it possible for users to disconnect their machines from mainframes or local area networks without having to lug around unnecessary hardware. The Ogivar 286 Expansion Chassis will accommodate ARCnet LAN cards from Tiara and Ethernet LAN cards from Western Digital. It will also run the Eicon Dial network adaptor using the X.25 protocol. Micro-to-mainframe IBM-compatible 3270 emulator cards including SNA, SDLC, 5150, and Irma 3270, are also compatible with the chassis. In addition, the internal 1200-baud modem which comes as an option for the 286 can be placed within the new expansion chassis. Weighing four pounds, the Ogivar 286 Expansion Chassis measures 1" X 4" X 15" and accommodates full- or half-size expansion cards. Ogivar Technologies, Inc., 7200, Route Transcanadienne, Ville Saint-Laurent (Quebec), Canada H4T 1A3. (514)737-3340.

New 386 Laptops Offer Choice Of Displays, Keyboards, And Disk Drives

Two new laptops from Micro Express, the Roadrunner Plus and the Regal II, come with a liquid crystal and gas plasma display respectively. Both offer 25 line by 80 character alphanumeric display with 640 X 400 pixel resolution for graphics applications. The Roadrunner and Regal come with 1 Mb of RAM expandable to 10, a 40 Mb fast-access hard drive, and a 1.2 Mb disk drive. Optional disk drives are offered, with hard drives up to 80 Mb, and both a 3.5" and 5.25" floppy disk drive with capacities of up to 1.44 Mb. One 16-bit long expansion slot and one 8-bit short slot are free in the Roadrunner Plus; the Regal II has a single free 16-bit long slot. A socket is available for an 80387 math co-processor. Portable and full AT-style keyboards are available, and both computers can drive external monochrome or color monitors. ($3399/3999) Micro Express, 2114 S. Grand Ave., Santa Ana, CA 92705. (714)662-1973.



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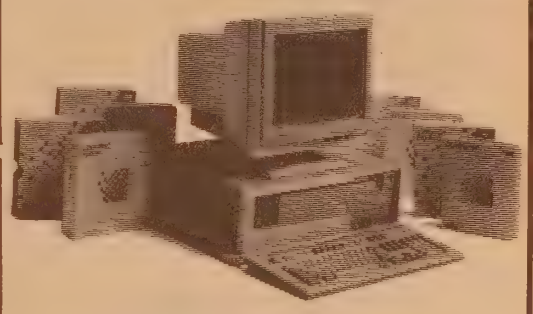

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Leading Edge Int. 1200B/2400B **$99/169**
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HARDWARE
BUYERS' GUIDE

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- 32KB optional CACHE memory available
- 1 MB (80NS, Static column memory) standard, expandable to 10MB
- Industry standard PHOENIX Bios
- LIM (EMS memory)/Diagnostic S/W standard
- SHADOW RAM for system & EGA Bios
- Norton SI:23, Landmark speed:26
- 80287 or 80387 co-processor socket
- 1.2 MB floppy drive standard
- Hard & Floppy disk controller standard
- 230W power supply standard
- Keytronics 101 enhanced keyboard standard
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- Real time clock standard
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Options:

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20MB (ST225) Hard Disk	225
40MB (ST251) Hard Disk	360
80MB (ST4096) Hard Disk	675
32KB CACHE memory	245
Tower case	95

EXP 80286 System

- 512K memory, expandable to 1MB
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- 6/10 MHz 0 wait. Norton SI:11.5
- Keyboard (84 Key)
- 1.2 MB Floppy Drive
- Printer Port
- Hard/Floppy Disk Controller
- Real Time Clock
- Hercules Compatible Mono Card
- 12″ tilt & swivel monitor
- Keyboard
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15 days money back guarantee for S/W compatibility

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40MB (ST251) Hard Disk	360
80MB (ST4096) Hard Disk	675
640KB Memory Upgrade	70
Tower Case	95
VGA board & monitor	575

EXP 8088 System

- 512K memory - expandable to 1 MB
- 4.77/10 MHz clock speed.
- 360KB floppy drive.
- Phoenix Bios (ver. 2.52)
- Printer port, Serial port.
- Game port.
- Real time clock.
- Hercules compatible mono card.
- 12″ Tilt & Swivel amber monitor.
- Keyboard.
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- Slide in type case.
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- Turbo mode LED.
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- Hardware reset switch.
- No hidden cost, Ready to run.
- Optional NEC V20 (SI:4.0)

$560

15 days money back guarantee for S/W compatibility

640KB memory	$610
20MB hard disk	265
30MB hard disk	300
2nd 360KB floppy	75

EXP 80286/20 System

- **1MB Memory installed**
- Fastest 80286 system. Faster than IBM PS2 model 80
- 80286 CPU running 20MHz, 0 wait
- Latest PHOENIX Bios 3.10 (built-in setup)
- 80287 socket
- Express RAM slot expands memory to 8MB running at full processor speed
- Memory beyond 1MB configurable as extended or expanded (LIM 4.0)
- 1.2MB floppy drive
- Printer port
- Hard/floppy controller
- Real time clock
- Hercules compatible mono card
- 12″ amber TTL monitor
- Keyboard (84 keys)
- Hardware reset switch
- 230W power supply
- Chips & Technology, NEAT chipset
- CPU board is made in USA
- Norton SI=23, Landmark=26
- No hidden costs - ready to run!
- Detailed technical manual available

15 days moneyback guarantee for S/W compatibility

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- 14″ Flat Screen Technology
- Non Glare, Dark Screen
- Built-in Tilt & Swivel Base

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Star NX 1000

- 144 CPS high draft speed
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- Draft, NLQ (courier, bold PS)
- PC Magazine's Editors Choice
- Built-in Tractor Feed
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SAMSUNG Amber TTL Monitor REPAIR!!!

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90 Days Warranty

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- DTC 7180: PC/AT, 1:1, MFM
- DTC 7187: PC/AT, 1:1, RLL
- DTC 7280: PC/AT, 1:1, MFM w/ FDC
- DTC 7287: PC/AT, 1:1, RLL w/ FDC
- DTC 6180: PC/AT, 1:1, ESDI
- DTC 6280: PC/AT, 1:1, ESDI w/ FDC

360K/1.2M/720K/1.4M Floppy Controller

- Handles any combination of 360KB/1.2MB/720KB/ 1.4MB floppy drive on 8088
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- Works on your 80286/80386 system.

Installation available

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- Intel 80386 cpu
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JC 14" Amber TTL	89
14" Amber Flat Screen	99
JC 14" EGA	339
Nanao Flexscan	545
14" TTL white soft	125
IMTEC Multisync	450

ADD ON BOARDS

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Mono graphic/printer	55
Color graphic	45
1.2MB/720K/1.4MB FDC	55
1200B Modem	59
2400B Modem	99
8088 Hard disk cont.	59
8088 Hard disk RLL cont.	65
80286 Controller MFM/RLL	119/145
Everex 3MB EMS (Lim 4.0)	85
Paradise VGA+/16	339
Paradise VGA +	285
Paradise VGA Pro	450
Everex EMS multifunction	65

PRINTERS

Panasonic 1124	335
Qume Scrip Ten Laser (Postscript 3MB Memory, 10ppm)	3,495
Panasonic 1091i	199
NEC P2200 24 pin	349
Epson LX-800	209
Star NX-1000	189

DISK DRIVES

Fujitsu 360K/1.2MB	$69/89
3.5″ 720KB/1.4MB	79/99
ST225/238 hard disk	225/239
ST251/ST251-1 hard disk	355/435
ST4096 hard disk	675
ST125/138 (3.5″, 28ms)	255/355
Micropolis 70MB	535

CPU BOARDS

8088 cpu bd (4.77/8MHz)	$75
8088 cpu bd (4.77/10MHz)	79
80286 cpu bd (6/10MHz)	210
80286 cpu bd (6/12MHz)	250
80286 cpu bd (8/20MHz)	495
80386 cpu bd (8/20MHz)	1,555

(1 MB memory, 80386-20 CPU, EMS S/W, Diagnostic S/W)

MISCELLANEOUS

Handy scanner (4 inch)	$265
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Jr. Case/150W PS	38/43
Case/230W PS	55/65
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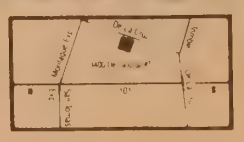

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HARDWARE

BUYERS' GUIDE

EXP 80286/10 Jr. System

FEATURES

- 80286-10 Intel CPU chip.
- 512KB Memory Installed, expandable to 1MB on the CPU Board.
- 8/10 MHZ clock speed. (1 WAIT State)
- AWARD Modular Bios.
- Built in Bios Setup S/W.
- 80287 Coprocessor socket (Sorry no 8087 socket)
- Built in real time clock.
- 360KB Floppy disk drive.
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- 12" Amber TTL monitor with tilt & swivel base.
- Monochrome graphic card.
- 165 W Power Supply.
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- Allows to use all of your PC/XT Controller & add on cards.
- No hidden cost, ready to run.

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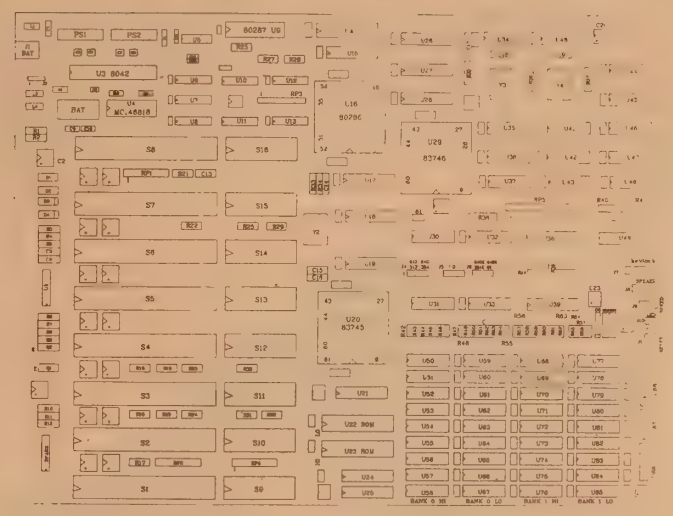

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This is not a accellator card or clock switch. It's full function of 286 cpu board with 80286 cpu, 16 bit data bus & much more. It also upgradable to 1 MB Memory.

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1024x768 Display System

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BENEFIT	FEATURE
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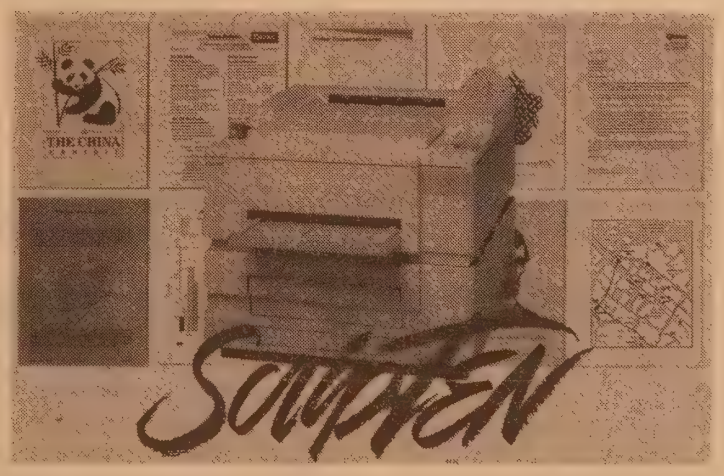
Widest	29KHz horizontal scan
Scanning	Interlaced
Horizontal lines	1248
Vertical lines	798
Superior display Resolution	1024 x 768
Ergonomically designed for ease and comfort	Built-in tilt and swivel base,
CRT	14" Diagonal, 90 degree, flat screen
Display size	230mm x 170mm
Power Source	AC 115/60Hz
Power consumption	35 watts
Real controls	Power, Brightness, Contrast V-size, V-Line, V-HDD
Color	Paper white phospher, Non-glare etched screen
Nonlinearity	10% maximum
Input connector	9-pin, D-type
Operating environment	Temperature -5°C -40°C Humidity 5 -80%
Physical dimension	13" x 13" x 12".
Testing	72 hrs. burn-in
Warranty	One year, parts and labor

* 15" monitor available.

$495.

POSTSCRIPT Laser Printer



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Choose from ScripTEN's 11 resident type families with 35 typefaces in an unlimited range of sizes and styles. Or, if that's not enough, a wide selection of downloadable fonts is also available from Qume.

Plus ScripTEN's ten-page-per-minute print speed and three megabytes of RAM memory give you full pages of printed bit-mapped images quicker than ever.

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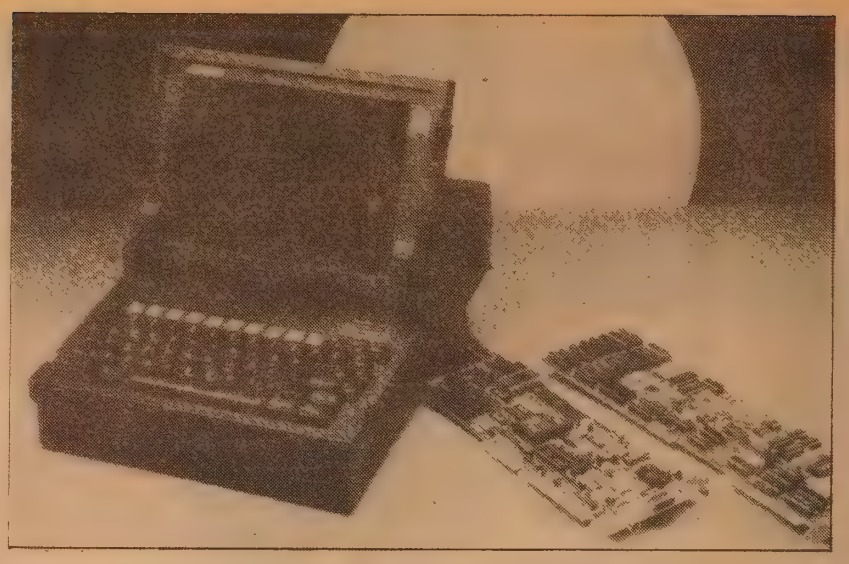
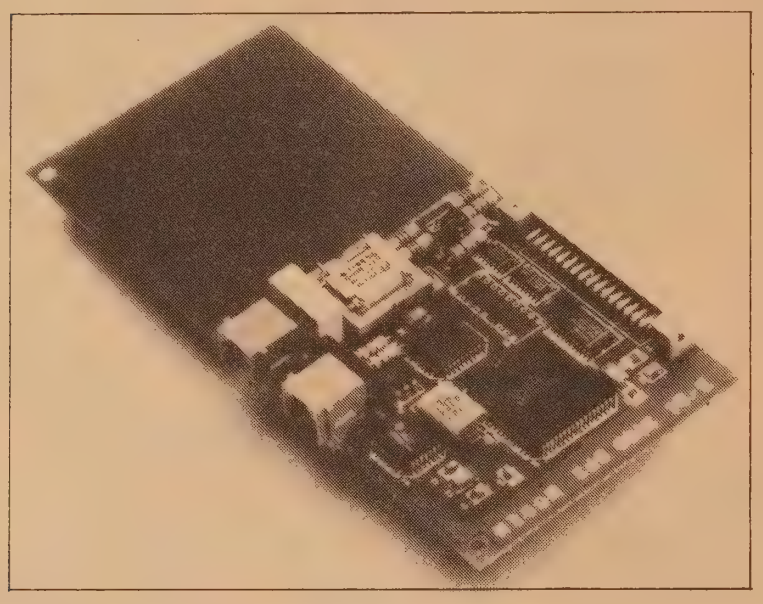
$3,395.

GRiDCase Laptop Features 386 Power, Detachable Expansion Tray



The GRiDCase 1535 EXP is a battery-powered 386 laptop with two XT/AT expansion slots on a snap-on/snap-off tray. The GRiDCase operates at 12.5 mHz, weighs 16 pounds (12 without the expansion tray), and includes a 40 Mb hard drive, 1 Mb of RAM, and a 10" 640 X 400 high-contrast, backlit LCD screen for easy viewing. Options include a gas plasma display, a 2400/1200/300 baud internal modem, and an 80387 co-processor. ($7495) GRiD, 47211 Lakeview Blvd., Fremont, CA 94538. (415)656-4700.



New Modems Improve Telecom Capabilities Of Z-180 Laptops

Computer Peripherals has introduced two internal modems for Zenith Z-180 laptops, one 1200 bps and the other 2400 bps. The Hook-Up Z-12 and Z-14 are Hayes compatible and support Bell 103 and 212A standards, as well as the V.21 and V.22 standards. Both support the Extended AT command set while providing both adaptive and fixed compromise equalization. Proprietary telecommunications software is included with the modems. Other standard features include: voice/data switch and automatic retain capabilities, full or half duplex operation, a 40 character command buffer, and extensive self-test and diagnostic features. Mike Mock, Computer Peripherals, Inc., 667 Rancho Conejo Blvd., Newbury Park, CA 91320. 1-800-854-7600.

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Add $450 for VGA system.
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Add $85/130 to 512K/640K of Memory.
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Add $165 for CGA (0.41 Dot Pitch).
Add $250 20MB Hard Disk.

MOTHER BOARDS
AT-386 25MHz w/CPU (0K) . $1250
AT-386 20MHz w/CPU (0K) . . 950
AT-286 16MHz w/CPU (0K) . . 395
AT-286 12MHz w/CPU (0K) . . 250
Turbo XT 10MHz (0K) 67

DISK DRIVES
ST-225 20MB 65ms $199
ST-251 40MB 40ms 325
ST-251-1 40MB 28ms 380
ST-4096 80MB 28ms 545
Fujitsu 5.25" 360K/1.2M . . 60/75
TEAC 5.25" 360K/1.2M . . . 65/82
TEAC 3.5" 720K/1.44M . . . 79/89

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XT Floppy Controller $17
AT Floppy Controller 39
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AT Hard & Floppy Controller (WA3-16) 99
Drive Cable 6

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Monographic Printer Card . . . $42
Color Graphic Printer Card . . . 40
Paradise Auto EGA 480 165
Paradise VGA/Plus (800x600) 259
Paradise VGA Professional . . 425
VGA Card (640x480) 195

MONITOR
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14" Green/Amber Flat 99
14" CGA (0.53 Dot Pitch) . . . 205
14" CGA (0.41 Dot Pitch) . . . 230
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NEC Multisync II (800x560) . . 560

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GM-ST (20-200 DPI) $39
GM-6 Plus (200-800 DPI) . . . 49
GM-6000 (350-1050 DPI) 59
GM 2000 Scanner (400 DPI) 185
BTC 5339 102-key 42
KeyCat (102-key w/Mouse) . . . 99

MISCELLANEOUS
AT Multi-I/O (2S/1P/1G) $42
AT Multi-I/O (1S/1P/1G) $38
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Epson LQ500 Printer . . . . CALL
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FAX: (408) 437-1596

Arts & Letters Composer

Business Graphics Under Windows

By Woody Liswood

Arts & Letters provides the PC user with an object-oriented drawing program that includes its own fonts.

Arts & Letters Composer is a business oriented display graphics program which runs under *Windows*; it's actually the popular *Diagraph* program ported to *Windows* without its nasty copy protection scheme.

As with all *Windows* products, it uses the standard interface. If you feel comfortable with *Windows*, you will feel comfortable using *Arts & Letters*.

Arts & Letters comes with a massive symbol and icon library for use in charts and textual display graphics. Individual illustrations from the library, called symbols by *Arts & Letters*, are selected not by name but by number. You will need to keep the documentation handy, since that is the only way which you can look up the image you want, find its number, then call it to the screen. If you used *Diagraph*, you will understand how this works. In fact, if you liked *Diagraph*, I think you'll love *Arts & Letters*, because the *Windows* environment is a natural graphic interface in which the program works somewhat more intuitively than the original.

With over 2,200 images in the library, it may appear that you have enough images. However, you get even more from other special symbol libraries when you return your registration card. And, as with *Diagraph*, you can purchase a wide variety of image libraries to suit your every need. *Arts & Letters* will also read and use any graphic which you created under *Diagraph*, so you haven't lost any work. If you purchased extra libraries for *Diagraph*, they will not work, but you could copy a variety of the symbols which you use all the time into a special graphic, then use that as your library under *Arts & Letters*.

Arts & Letters continues with the object-oriented (as opposed to bit-oriented) format. After loading a graphic, you can grab it with the mouse, move it where you want, grab a corner and stretch it, grab a side and widen or narrow it.

Text is entered in its own box. After it's been keyed in, text becomes a graphic object and is treated as any other object, sized and moved at will.

Arts & Letters comes with its own fonts—33 listed in the documentation. This, in my mind, makes it a better purchase value than its nearest competitor, *Micrografx Draw*, which only uses *Windows* fonts. On the other hand, the images with the Micrografx products are much more complex that much of the *Arts & Letters* images, so perhaps it is a standoff.

You have complete control over size and leading. While the font control is really good, and text treated as an object is much better than the text handling in *Diagraph*, you do give up one feature from *Diagraph* which you might still find useful. In *Diagraph*, it was easy to single out a single letter to have it a different font or color. Not so now. You would need to create that letter as a separate object and place it in the appropriate position. Not impossible, but a more difficult task.

The pull-down menu system follows *Windows* conventions. The file menu lets you identify a new file, open, save and save as any new file name, print, change the target printer, and set your page layout defaults, as in all of the other *Windows* applications. You can also import and export files. *Arts & Letters* can import the following types of files: ".TIF" Tagged Image Files, ".WMF" *Windows* Metafile, ".PIC" *Lotus* graphs, ".DIA" *Diagraph* version 3.5 and 4.0 files, as well as unformatted ASCII text files.

Exporting files is somewhat different since additional *Windows*-specific programs are supported. Exporting can be to an ".EPS" Encapsulated PostScript file with a screen representation for use with *PageMaker*, an ".EPS" Encapsulated PostScript file without screen representation for use with *Ventura Publisher*, ".WMF" a *Windows* Metafile and a ".CSP" for use with Computer Support's *PC Emcee* program.

You enter objects into the graphic area through the object menu. There are two choices, symbol or yexy. If you select symbol, you must give *Arts & Letters* the number of the symbol you wish to capture from the symbol library. You can then chose a dialog box button to Add, Replace, or cancel your action. If you choose add, a cross appears on the screen. Use the mouse to place the cross where you wish, click, and the symbol appears. It can then be manipulated as you wish.

If you choose text, you enter your text into a box within the dialog box. You can add, replace, cancel or undo your actions. Additionally, you can change the case of your text object to all upper or all lower as needed. If you made a mistake when you entered the text the first time, you can also edit as necessary.

The edit menu allows you to select, cut and paste, clear and duplicate selected objects. Here you can undo a mistake if you just made one.

The draw menu lets you add lines, polylines, and polygons. A Polyline is a series of connected lines which you make by dragging the line from point to point. In this menu, there is an item called tools info. Here you are told that in the future, there will be a symbol editor available. Now, you must treat the symbol as an object and must treat the entire object the same.

You cannot, for example, just add blue to an eye. If you select the object,

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HARD DISK CONTROLLER
MONOCHROME VIDEO CARD
PARALLEL, SERIAL & GAME
PORTS, CLOCK AND CALENDAR
101 KEY ENHANCE KEYBOARD
HI-RES AMBER MONITOR T&S
SOFTWARE AND WARRANTY

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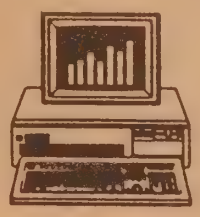
12 MHZ 286-AT SYSTEM



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512K RAM MEMORY
6/12 MHZ MOTHERBOARD
MINI AT CASE W/LEDS
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HARD/FLOPPY DRIVE CONTROLLER
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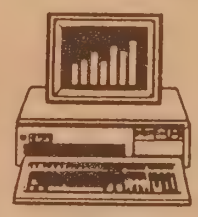

With MS-DOS® 3.3 & GWBASIC $79 Extra

1 MEGABYTE OF FAST 80 NS RAM
0 WAIT STATE
6/20 MHZ MOTHERBOARD
MINI AT CASE W/LEDS
200 WATT POWER SUPPLY
1 - 1.2 MEG FLOPPY DRIVE
40 MEGABYTE HARD DRIVE
WITH 28 MS ACCESS TIME
HARD/FLOPPY DRIVE CONTROLLER
MONOCHROME VIDEO CARD
PARALLEL, SERIAL & GAME
PORTS, CLOCK AND CALENDAR
101 KEY ENHANCED KEYBOARD
HI-RES AMBER MONITOR T&S
SOFTWARE AND WARRANTY

$1699

PORTABLE LCD 286-AT SYSTEM

With MS-DOS® 3.3 & GWBASIC $79 Extra

512K RAM MEMORY
6/12 MHZ MOTHERBOARD
PORTABLE CASE WITH
SHOULDER BAG
165 WATT POWER SUPPLY
1 - 1.2 MEG FLOPPY DRIVE
20 MEGABYTE HARD DRIVE
HARD/FLOPPY DRIVE CONTROLLER
MONO/CGA VIDEO CARD
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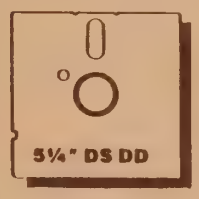

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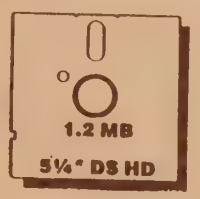

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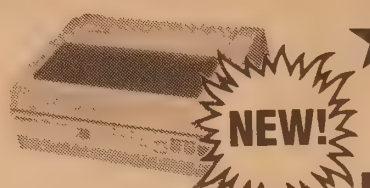

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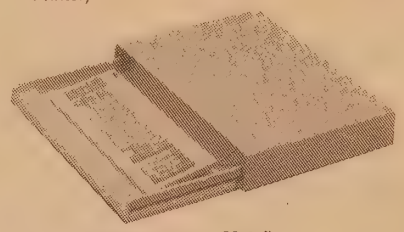

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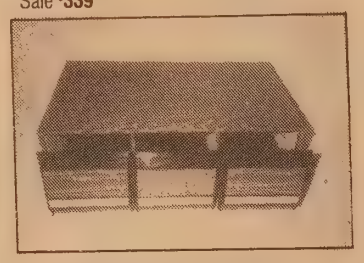

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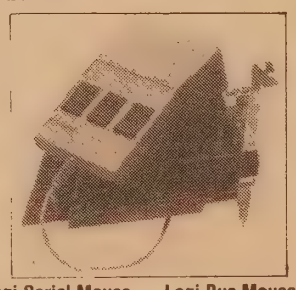

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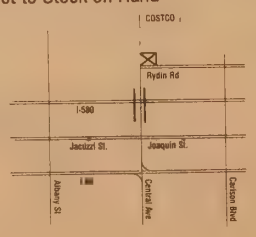

you can color all of it blue. (A supplementary package, *Arts & Letters Editor*, lets you pick apart the object and treat each of the internal elements as a separate item.) There is a workaround for this problem now, if you do need it. Just trace the required part of the object with the polyline tool. Then treat that as if it were the object. It works reasonably well, but since you are working with lines rather than with splined curves as the objects are, you must be careful about your color filling.

The manipulate menu lets you group, ungroup, align, bring objects to the foreground, the background, rotate, slant, make the object proportional to the original image, flip vertically or horizontally.

An interior menu allows changing the color of the interior of the selected object. It also allows selecting the shading and pattern used within the object. You will need to look up the patterns in the library documentation to select the one you wish.

This interior feature is quite nice and one reason why I recommend *Arts & Letters*. Since a letter is treated as an object, I can use a typeface such as Modern Bold, which is a big, heavy, and bold headline-style typeface. Then, I can have the outline of the letter in black and the interior of the letter another color. I have found that many of the colors of pens which are used by pen plotters just do not project well as transparencies. They are too flat and washed-out looking. Now that I can surround the color with a black border, the colors stand out and are usable. It is too bad that not all graphics programs make use of this type of feature. If you wish to shade the interior since you are using a laser printer, there are 18 halftone patterns, 18 dither patterns, and 156 other shading and fill in options.

A separate line menu lets you change the line color and line type. There are eight color choices. Under line type, you can even choose none; you can create an image and only have the fill show, not the edges. There are a number of line types, so again it is handy to have the Symbol library documentation at hand to look up what you want.

The type menu is where the fonts and all their manipulation is done for selected objects. A dialog box is shown for all of the typefaces. You have control over points. Spacing can be either automatic, manual, proportional for fixed. Leading can be automatic or manually done. You also can condense or expand the typeface by percentages. In *Arts & Letters*, this is the ratio of text width to text height with 100% representing the normal text ratio for a given typeface. Within this menu, you can also chose a normal font, an italic font, to bold the text, to strike out or even to underline the text. If you chose the italic, you must give the number of degrees you wish to slant the text, with negative numbers pulling the italic to the left.

And, lastly in our walk through the menu structure, is the view menu. Here you can look at an object in the actual size it will appear in your document. You can display the current page in your window. If you have multiple pages in your document, you can display all of those pages. If necessary, you can zoom in on a portion of a document for fine detail work and, when done with the detail, can return to your previous view. Here, hidden in this menu, you can set things such as grids of dots to help in object alignment, turn on or off the grid display, and turn on or off the ruler display.

The documentation is spiral bound and consists of a symbol library and reference guide. If you're already familiar with *Windows, Arts & Letters* is very easy to learn to use. Also included is a small brochure asking you not to give away the software now that copy protection has been removed. I found the index to be excellent in helping me find the information I needed.

The tutorial walks you through the basics rather quickly and shows all of the major features of the program. You will need to keep the symbol library illustrations near your work area, since you will be continually looking up symbol numbers to select from the library.

Summary

Arts & Letters may be one of the good reasons to move into a *Windows* environment. It has a wide variety of symbols and typefaces. It can do almost any object manipulation you need. It works with the major desktop publishing packages. It is easy to use. If your needs for manipulation are extensive, you will need to get the symbol editor, but I would not delay a purchase of *Arts & Letters* just to wait for the editor. The program just works too well for that. (*Arts & Letters Composer*, $395; *Arts & Letters Editor*, $695. Computer Support Corporation, 15926 Midway Road, Dallas, Texas 75244, 214/661-8960.) ■

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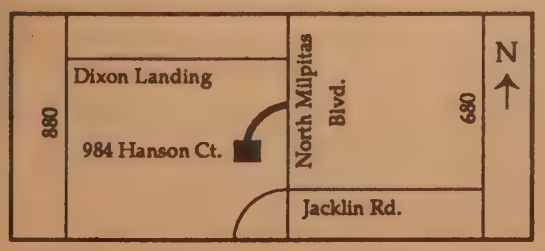

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PC-Write 3.02: New Features For The Shareware Favorite

By Lenny Bailes

Shortly before Thanksgiving the new version of *PC-Write* appeared at COMDEX and on BBS systems throughout the United States. A preliminary beta release was distributed in October to some registered Quicksoft customers, and in December a completely debugged version (3.02) was released for universal shareware distribution.

PC-Write has been part of the trend toward increased power in word processing software during the last year. While the new version does not match *WordPerfect*, *WordStar*, and MS *Word* on all features of their current releases, it remains available for one-third of their price (or free for trial evaluation). *PC-Write* offers most of the features anyone would ever need for text-only word processing, including multiple document editing, mail merge, and spell checking.

What's New?

File size for editing is now determined only by available memory—no more 64 K limit on text files.

Improved Printer Support: Over 500 different drivers are included, with improved support for PostScript, and the HP LaserJet family. HP DeskJet cartridges and downloadable fonts are now also supported. For the LaserJet+ and LaserJet II, company-issued soft fonts and standard cartridges are supported. For non-Hewlett-Packard soft fonts, the support is similar to *WordPerfect*'s. Quicksoft sells a separate font selector utility which generates appropriate drivers for third party fonts in compatible H-P format.

Parallel Columns: These are used in creating tables and drama scripts. Text does not automatically snake onto the second column on a page. You can easily mark text and transfer it to a second column with *PC-Write*'s boxing feature. Each column can be edited and reformatted independently. The cursor can be moved within a column or skipped to the next column.

Express Editing and Printing: Files can be loaded or printed directly from the command line, saving many keystrokes necessary in previous versions of *PC-Write*. A document can be opened automatically at any line number.

Shorthand Mode: This is analogous to Microsoft *Word*'s glossary feature. You can set up two- and three-letter abbreviations for commonly used words, type them into a document, and later expand them.

Compatibility with DESQview and MS Windows: *PC-Write* can now be run in a small window in *DESQview* or a full-sized one in *Windows*.

Cosmetic Improvements: The status line now displays page/line numbers, and beeps can be replaced by visual prompts. Files can be loaded by highlighting them from a directory list. A series of files can be designated for successive editing. Cursor scroll rate can be speeded up or slowed down. Automatic paragraph reformatting and wordwrap can be toggled on or off.

Many other small features and options have been added to *PC-Write*. Bob Wallace, Quicksoft's founder and president, continues to move the program in the direction of writers' favorites like *XyWrite*. If you want to remap your keyboard, design new editing functions, or alter other program parameters, the manual provides instructions for you.

Documentation

PC-Write's manual can be heavy reading for a brand new user, but it also includes good basic information for computer novices. The manual provides an introduction to DOS and to computer hardware in general (how to use the keyboard, what function keys are, how memory works, etc.). The beginner's word processing tutorial is not difficult. If a new user turns to the tutorial immediately and follows it, the basic text editing functions will be imparted.

The trick is not to get lost in the rest of the fascinating but voluminous information offered in the manual. For instance, a beginner might not want to learn about the four or five different kinds of margin settings, or how to change the definitions of upper and lower case characters for the find/replace function, but a beginner might be interested in spell checking a group of documents, placing bookmarks in the text or automatically drawing boxes around text blocks.

The Shareware Way

If you buy *PC-Write* from a shareware vendor, you get three disks. The Tutorial and a user Quickguide are on the disks as files which you can print without knowing how to use the program. Each disk has a file called GO.BAT which tells a novice how to get started.

The shareware distribution system means you get everything you need to audition the program from just these three disks. If you decide the program meets your needs, you send $89 to Quicksoft and become a registered user. Quicksoft then sends you a complete package which includes the illustrated 400-page manual, printed Quickguide, catalog of third party enhancements, and the right to receive free upgrades on subsequent releases. The new disks which you are issued also contain your personal serial number.

If you share your registered disks (encouraged!) and a subsequent user registers from them, you receive a $25 rebate from Quicksoft for each new user who sends in your serial number. The new users are, in turn, given their own registration numbers.

In the works for future release is a special, streamlined version of *PC-Write* with simplified command structure for beginners, yet capable of editing files as large as memory allows. Quicksoft welcomes feedback from users on what they'd like to see included in "*PC-Write Light.*"

PC-Write 3.02 is available from Quicksoft, 219 First Avenue, #224, Seattle, WA 98109. Telephone (206)282-0452. Orders: 1-800-888-8088, 7 am to 5 pm, M-F. (*PC-Write* is also available for trial from most shareware vendors and public BBS systems). ■

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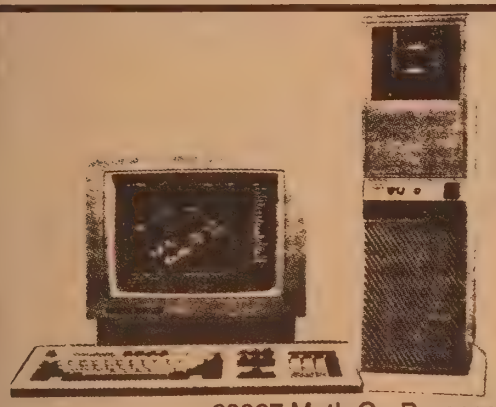

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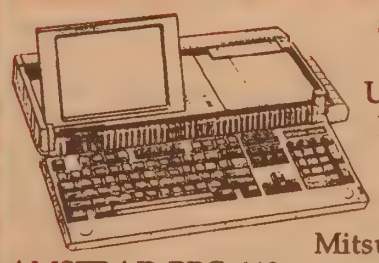

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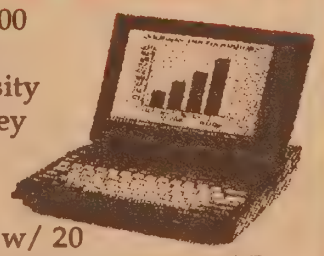

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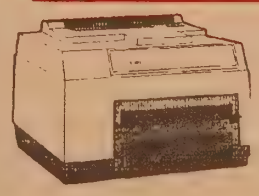

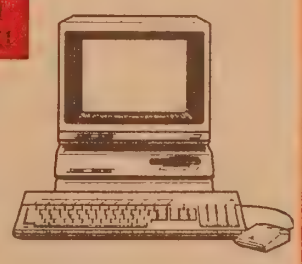

Make Your Own Will And Save A Bundle

By Aubrey Pilgrim

No one likes to think about dying, but it's going to happen to every one of us sooner or later. People of all ages die from a myriad of causes.

Many of those people die intestate, or without a will. In such a case, the state often steps in and distributes the estate as it sees fit; the property will be probated, and court costs and lawyers' fees will be deducted. Depending on the size of the estate, there may not be much left to distribute after these costs have been deducted.

It's important, therefore, to have a will, but many people have not drawn one up. One reason is a reluctance to think about death, but another is the cost involved: $150 and up, plus the time and trouble you have to take to consult a lawyer.

However, if you have a personal computer, you can make your own will, and those of your immediate family, for a lot less money than what a lawyer would charge. Nolo Press of Berkeley has developed *WillMaker*, a software package that can be used in all states except Louisiana to make your own will.

WillMaker comes with a 200-page manual which will probably explain more about wills than you need to know. It goes into great detail in discussing the provisions and eventualities you should address in your will. It also prompts you to sit down and make an assessment of your worth and properties; you may be surprised at how much you're actually worth.

The manual discusses the details of property ownership laws, including the community property and common law provisions of some states. Many couples today are living together, and many believe that they are married by common law, but unless they live in one of 14 common law states (which don't include California) or the District of Columbia, they aren't. Similarly, only Arizona, California, Idaho, Nevada, New Mexico, Texas, Washington, and Wisconsin have community property laws. The manual has an extensive discussion of what is and is not community property, which may depend on such considerations as when and how it was acquired and what type of property it is.

Many states guarantee certain inheritance rights to a decedent's family, and the manual lists and explains those provisions. Other articles explain the consequences of moving from state to state, gifts to charity, how to limit the impact of taxes and probate fees, special considerations for children, and planning for the unexpected. There's also a useful glossary of technical terms.

Using WillMaker

You don't need to read the manual to use the software, though Nolo recommends that you do. *WillMaker* presents you with simple screens to fill out with various bequests and wishes. Each screen contains a reference which points you to the corresponding section of the manual if you need more information. The program also includes on-disk help for many questions and offers definitions for technical terms. It prompts you with on-screen questions, then takes your input and builds a legally valid will around your answers.

WillMaker does not create text files that can be imported into a word processor, which makes it somewhat inconvenient to use: if you have typed in a long paragraph and discovered an error near the beginning, you will have to erase the entire paragraph and start over. There are, however, sound legal reasons for this inconvenience, in that some changes in the format could invalidate the will.

In most cases, your entries will be limited to a single paragraph, so enter only essential information. *WillMaker* takes your finished entry and inserts it into the will it's creating. Once you've entered all your information, you can display the completed form on your monitor or print it out. At this point you can also go back and revise any of your individual entries.

After you've made all your revisions, you should print out a final copy. Each bequest is numbered, and depending on how many you have, your will may have several pages. Each page is also numbered and must be initialed and dated by the person making the will. The final page includes spaces for your signature and those of three witnesses (while two are sufficient in some states, three are recommended). The witnesses do not have to read the will, and they may or may not be beneficiaries of the will; they must witness the signing of the will by its creator and swear to that fact.

Nolo strongly recommends that you keep your will up-to-date as changes in your circumstances occur. Again, this is easily done and you still needn't visit a lawyer.

Installing *WillMaker* on a hard disk is easy, but Nolo recommends that each person's will be kept on a separate floppy disk for private storage and easy revision.

Who Needs It?

WillMaker may not be for everyone—if you have a large complicated estate, say over $600,000, you might really be better off consulting an attorney. However, the vast majority of people can use this program easily. And even if only one family member uses *WillMaker*, it'll pay for itself almost immediately. At $59.95 for Apple or IBM versions, $39.95 for Commodore 64, *WillMaker* is a bargain.

Attorneys specializing in wills might even want to use this software for their clients—it makes the whole process flexible and quick.

WillMaker is not copy protected. (Nolo Press, 950 Parker, Berkeley, CA 94710, 415/549-1976.) ■

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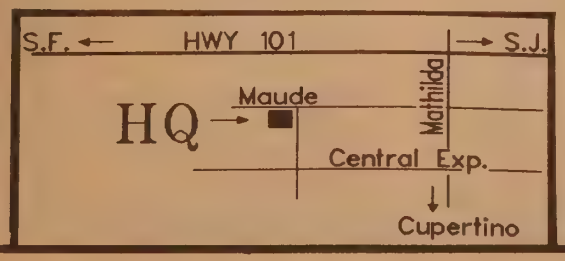

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The Hewlett-Packard DeskJet Printer

By Ed Kahn

Several years ago, I began planning my strategy for buying my next printer. It had to be quiet, capable of turning out letter quality documents, offer the speed of a dot matrix unit, handle individual sheets rather than formfeed paper, accept envelopes, and sell for less than $1,000. The day has arrived and I have my new printer. What did I get? Not a laser printer, but a new model from Hewlett-Packard that should earn a place the desk of anyone who's considering a laser printer, but doesn't have the need for a huge machine that turns out pages at the rate of six or more per minute.

Hewlett-Packard's DeskJet is a revolutionary new product. Until now, I have been using an old dot matrix printer for draft work and a slow but faithful letter quality machine for final copy and correspondence. The cost of these two machines was well above the street price of the DeskJet. Now I can recommend no other printer than the DeskJet to anyone who needs letter quality.

Let's look at the specifics that make this printer the only thing in its class. The technology of the new Hewlett-Packard unit is an outgrowth of their old inkjet technology in which ink is sprayed from tiny nozzles onto the paper. The old unit was a good idea, but had problems that made it less than perfect. This new unit uses a completely redesigned ink emission system that doesn't clog or malfunction in any other way. The ink comes in a cartridge (list price $18.95) that snaps into the unit and is good for between 500 and 1,000 pages. When the cartridge is empty, a new one is snapped into place simply and cleanly. No messy ink on your hands!

The technology provides for a resolution equal to that of a laser printer: 300 dots per inch. But more importantly, the unit has been designed so that it can print from the print drivers designed for the Hewlett-Packard LaserJet line of printers. The drivers are not identical, but work perfectly, with the exception of proportional spacing and a few other subtleties. But by now most of the software vendors are providing drivers specifically designed for the DeskJet, so that all of the features of a laser printer can be implemented on the DeskJet.

While this printer does not spew pages out, it does print at a respectable rate of 120 characters per second in letter mode and double that if you select draft mode. I have found that for some kinds of paper and many envelopes the draft mode provides a better-looking printing job than the letter quality. If, however, you print on a good quality bond paper, the letter quality mode provides as fine a printing job as you have ever seen.

One of the beauties of this printer is that paper is fed in from a trough that can hold a stack of paper about 3/4" thick. This allows you to use any kind of paper you want and to easily change from one stock to another. I normally use an inexpensive paper like I use in my copy machine and switch to first-rate bond paper for work I care about. Likewise, you can easily load up a sheet with a letterhead and follow it with sheets of second paper in order to write a business letter of more than one page. It is also simple to load a regular size #10 business envelope. In short, the printer offers nearly as much versatility as any printer I have used. You cannot print strange size envelopes, individual labels or postcards, but this is a small price to pay for the convenience and quality the printer offers.

The unit comes configured with a full set of Courier fonts that will allow you to select from either 6- or 12-point size in standard or bold type and in any of four choices of numbers of characters per inch (5, 10, 16.67, and 20) to print. In addition, the printer has two cartridge slots into which you can insert memory or font cartridges. If you purchase the optional memory cartridges, then you can download soft fonts which allow you to choose the type faces and sizes you want for your particular application. If, on the other hand, you elect to purchase font cartridges, you can choose character sets from a wide selection of optional type faces. I played around with both Times Roman and Helvetica fonts in the unit which I evaluated. This provided me with a selection of three type faces, which allowed me to design a letterhead. I merely import a template of the letterhead which I have created and then type the letter. The output is professional-looking.

The DeskJet comes with the printer, a separate power supply, an ink cartridge, and a detailed instruction manual. I have never set up a printer as easily. It involves little more than inserting the ink cartridge, plugging the power supply cord into the wall and the DeskJet, and connecting the printer and your computer by either a parallel or serial cable. The printer comes with ports for either configuration. When you turn the unit on, there is virtually no sound. Printing is no louder than a whisper as no impact technology is involved in getting the job done. A buffer holds up to 16 K of information, so for most jobs your computer is free long before your printing is completed.

Although most new software has a driver specifically for this printer, most functions will work with LaserJet drivers. If you like, however, you can purchase an optional Epson FX-80 emulation cartridge and then configure your software for the Epson printer. But the real beauty of this machine is that it not only puts out laser quality documents, but functions like a laser printer.

Like most other Hewlett-Packard printers, this model can be controlled by HP's PCL printer language. Accordingly you can control this printer in exactly the same way you would an HP laser printer. I ran *SuperCalc* using a LaserJet driver without a hitch. The newest *WordStar* has a driver for the DeskJet. In the back of the printer manual is a disk that contains drivers for a number of common software packages including Microsoft *Word*

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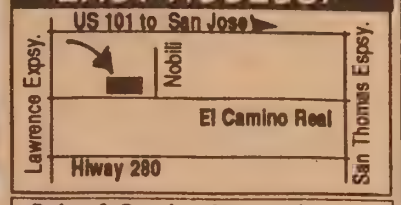

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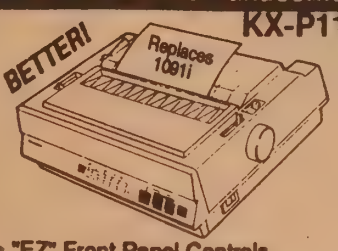

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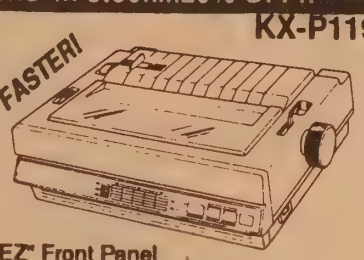

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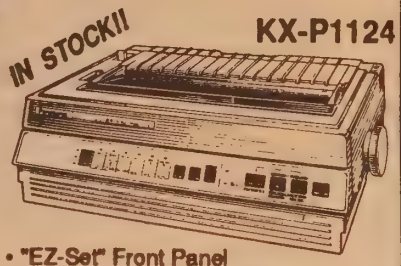

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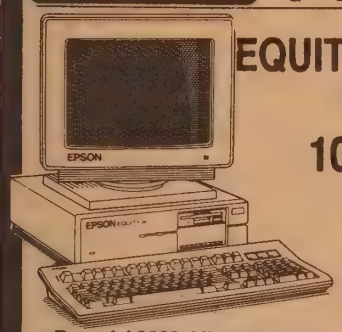

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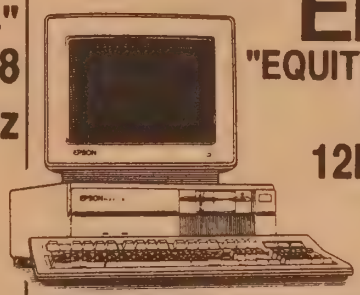

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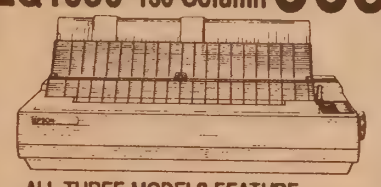

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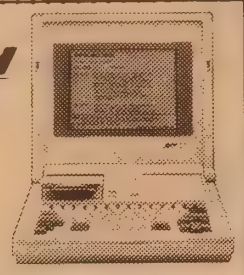

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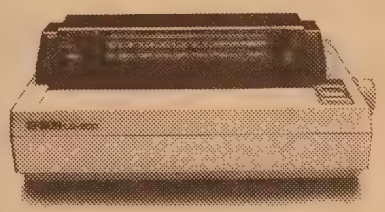

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R E V I E W S

Until now, I have been using an old dot matrix printer for draft work and a slow but faithful letter quality machine for final correspondence.

and *Lotus 1-2-3*. If your software will not work with any of your drivers, Hewlett-Packard will help.

There is another solution from Insight Development Corporation with their LaserControl ($149.95) package, which promises full control of laser printers with any software. The program is worthwhile whether you have interface problems or not. It allows you to easily control the printer from the keyboard without having to send complex control codes to the printer. Thus, you can set the printer up to use any font you have and do a lot of otherwise cumbersome tasks with ease. When I do spreadsheets, for instance, I instruct my printer to use 16.67 characters/inch, print 88 lines per page and allow a quarter inch margin at both the left and top of the page, while allowing a half inch at the bottom. This is a snap with LaserControl. You can get this kind of control even if your software cannot drive a DeskJet or even a LaserJet. This software allows you to configure your software to a number of different printers including the Diablo 630 and the Epson FX-80. LaserControl then translates this into language the DeskJet can understand. For about the price of Hewlett-Packard's Epson emulation cartridge, you get lots more. And your cartridge slots are still available for either additional memory or font cartridges.

Just to check things out, I got a copy of ERMASOFT Laser Envelopes ($49.95), a program designed to print envelopes on the LaserJet. I wanted to see if a program specifically designed for laser printers would really work on the DeskJet. No major problems were encountered, although I had to make a couple of modifications along the way. In their most recent version, available by the time you read this, the DeskJet is listed as one of the "laser" printers on the menu.

I have now worked with this printer for several months and found it to work virtually flawlessly. The documentation that comes with the printer is extensive, but so well organized that you should have little trouble finding or using the information you need. I did find a few mysteries in using the printer, like the inability to consistently get 88 lines on a page, as I had configured the machine before I began using LaserControl, but the HP technical support people were able to satisfactorily answer my questions.

If you use a printer to turn out standard kinds of documents, there is little need ever to dip into the programming chapter in the manual. If, however, you want to experiment with the wide range of capabilities the printer has, you will have to become familiar with the PCL printer language, which can instruct your printer in the most minute detail and turn out truly custom printing jobs.

In reviewing the product, I tried to put the machine through its paces. The only minor complaint I have is that the machine is designed so that it is impossible to print on the bottom half inch of the page, and there is no way to override this limitation. This does not limit your ability to get either 66 or 88 lines on a page, but it does mean that you cannot, for instance, put a page number on the very bottom of a page. Laser printers have similar, but slightly different, out-of-bounds areas.

If you are in the market for a printer and are using an IBM compatible computer, I strongly recommend looking for the best price you can find on this unit and buying it. It provides laser quality and equivalence for a fraction of the price. ■

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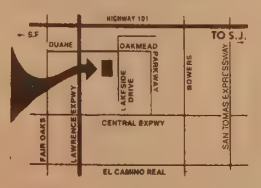

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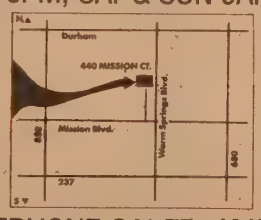

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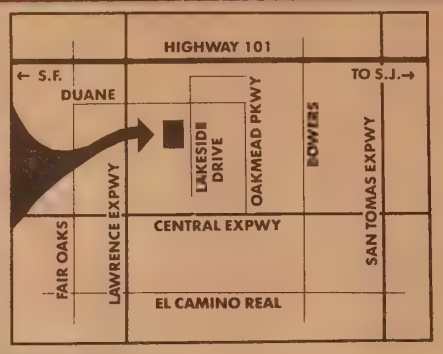

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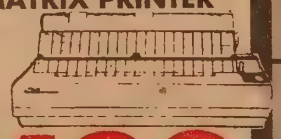

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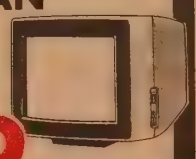

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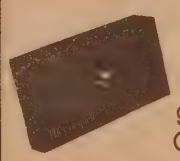

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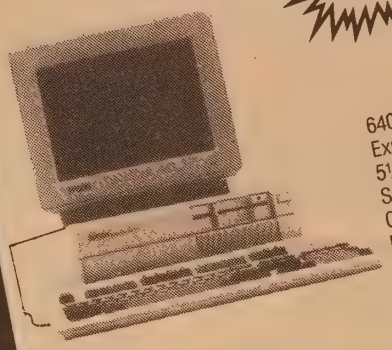

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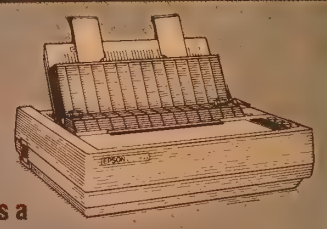

The Standard Width LQ-850 is a high-resolution, letter quality computer printer with outstanding performance features.

- SmartPark Paper Handling
  Change from fanfold paper to single cutsheet or envelopes without removing tractor hardware
- 264 CPS Draft
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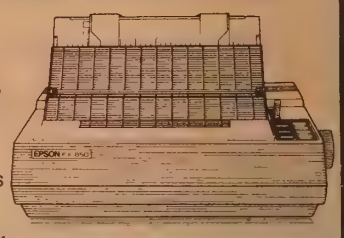

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- Narrow-carriage 9-pin, dot-matrix printer.
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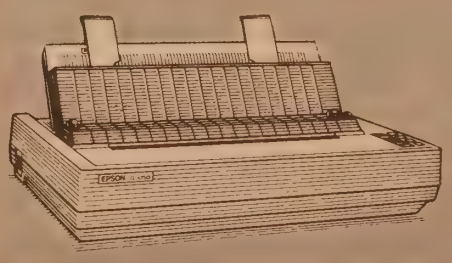

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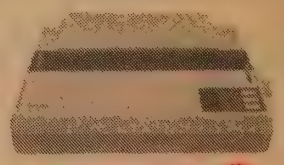

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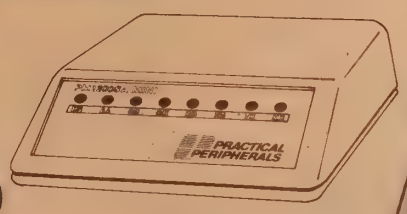

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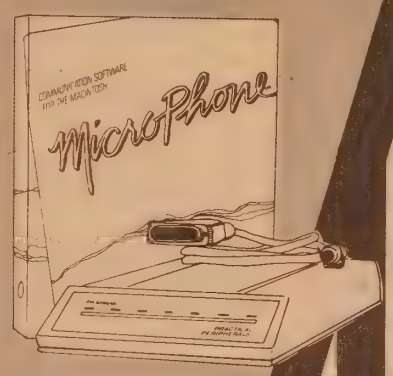

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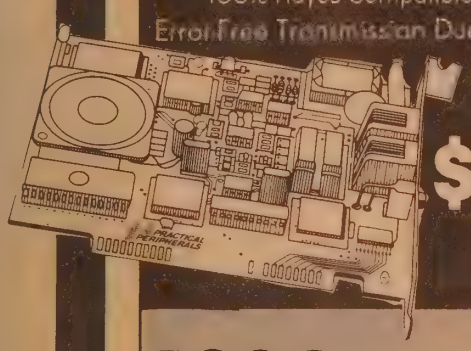

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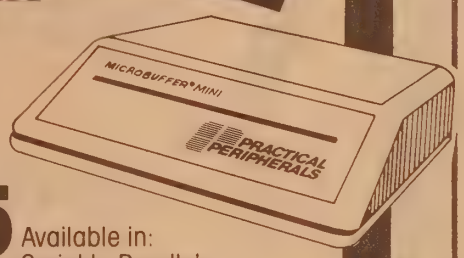

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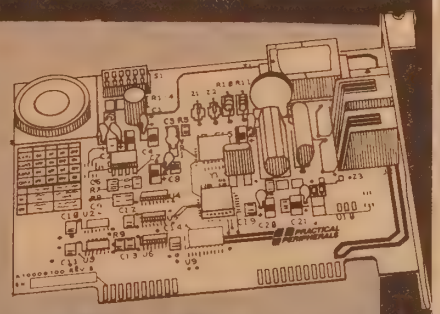

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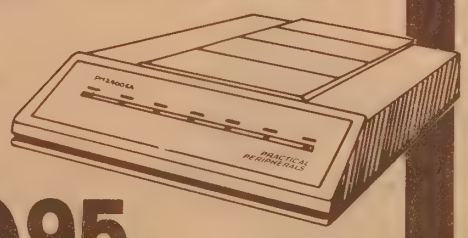

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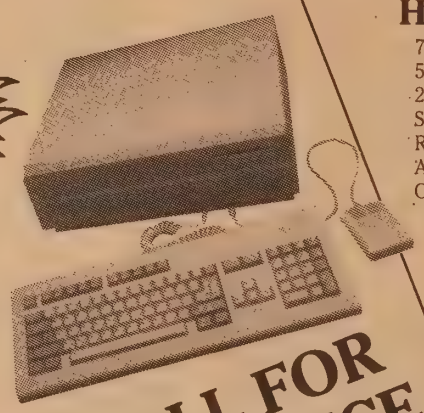

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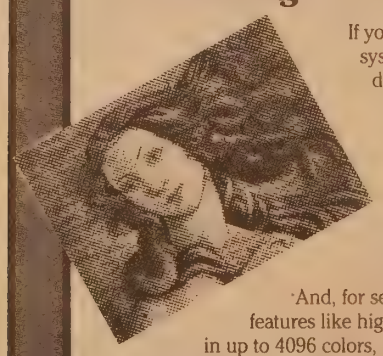

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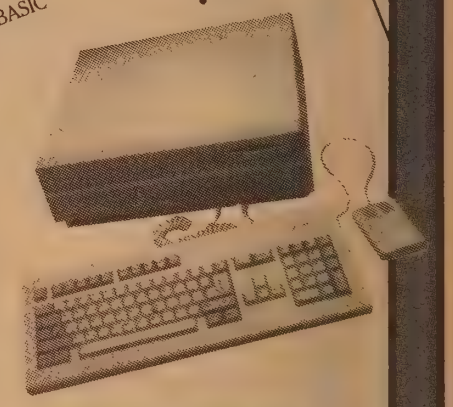
With Amiga Bridgeboard: Internal option for IBM-PC (MS-DOS) compatibility

Expansion slots: Up to 4 available Amiga Expansion slots Up to 3 IBM-PC Expansion Slots

1 special video Expansion slot

Built-in clock/calendar function with batteryback-up



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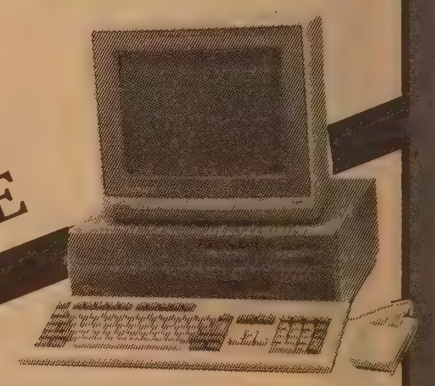

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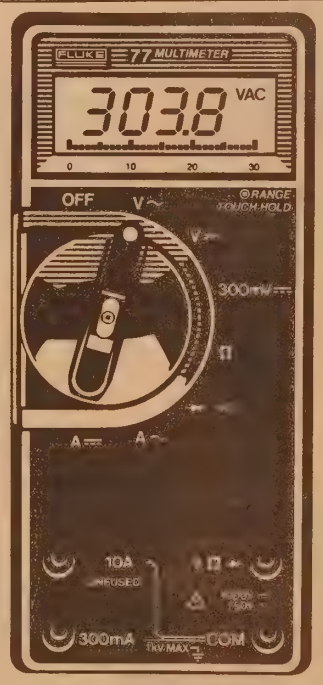

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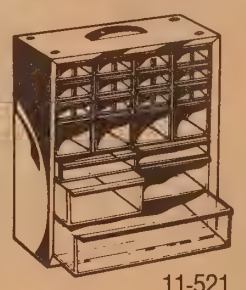

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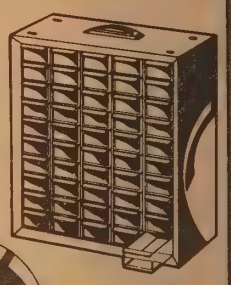

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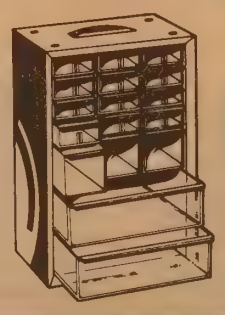

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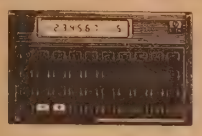

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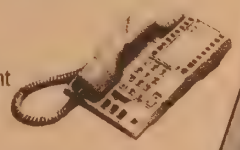

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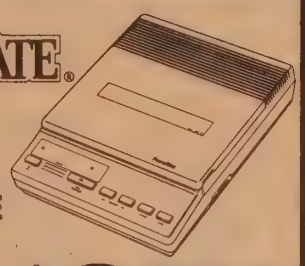

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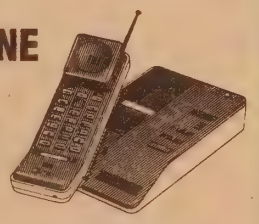

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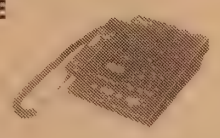

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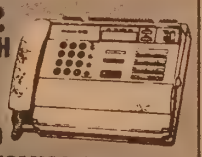

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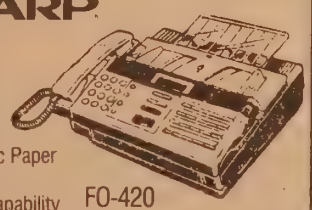

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New York Word

Power For The Shareware User

By Ed Kahn

Is there really an alternative to paying hundreds of dollars for a high end word processor? Apparently so. Marc Adler, author of *New York Word*, currently gets several dozen new registered users of the program each week. That's more than $1,000 per week—nothing for Microsoft to worry about, but pretty exciting for a $44.95 shareware program.

An examination of the program quickly explains what all the excitement is about. In some ways, *New York Word* is the ultimate word processor. In updated version 2.2, most of the bugs found in the previous release are fixed, and pull-down menus have been added.

It can do everything. From a spelling checker to a powerful macro capability, the list of features includes all of the things you would expect from a super-powerful program, plus a few twists you probably never dreamed of.

Cursor movement, for instance, has all of the obvious commands, plus controls that move you up or down the document one paragraph or one page at a time. Want to scroll up or down any specified number of lines or jump to a specified number of lines from the beginning or end of the document? These are all simple keyboard commands. Even familiar operations like block movements show some innovative aspects. You can, for instance, begin a block, then direct the program to end the block by searching for a period or a double carriage return in order to mark off a sentence or a paragraph. Once you have the block, you can copy or move it to a new place, or save it in one of nine internal buffers. When you decide to use the block, you have the option of inserting the text or overwriting an existing passage.

Formatting is also simple and versatile. It is easy to change the format, for one line or a whole document, from the middle of a text block. There are actually three kinds of formatting procedure. You can call up the format menu, which allows you to get down to the nuts and bolts of formatting (for example, setting auto wrap and justification). If you merely want to change margins, you can do that by calling up the "ruler line" and typing L and R at the positions you want for the margins. And if you just want to alter the left margin temporarily, you can position the cursor where you want the left margin and hit ^Y to set the new margin for the remainder of the paragraph, or until you issue any other *New York Word* command.

New York Word can be downloaded from a number of bulletin boards, ordered from PC-SIG, PC-Blue, or directly from Marc Adler. The program comes in a compressed form consisting of ten files, with startup notes in a READ.ME file. INSTALL is automatic. Like a carnival magic trick, files within files unfold and subdirectories are created. After installation, your hard disk will show a large \NYW subdirectory and additional files in three subdirectories of \NYW.

From top to bottom, *New York Word* is unique. A keyboard reconfiguration program allows you to redefine the *New York Word* commands to emulate your favorite word processor or any structure you like. The program is lightning-fast because it resides in memory rather than accessing the disk for files. And it's filled with nice small touches. For instance, one installation option has the program automatically insert two spaces after each end-of-sentence punctuation mark when doing a reformat.

Another option is an automatic backup, triggered by a user-specified number of keystrokes. This is different from a regular backup file—the automatic backup is a special file for power failure protection. It doesn't overwrite a backup which you may already have.

You can have twelve windows, each with separate documents or multiple copies of any document, and copy text from window to window. A single command expands any one of these to the full screen.

One of the most powerful features of *New York Word* is windowing. A simple command splits the screen and allows you to call up either a different document or a copy of the same document on which you are working. The same command will open yet a third...and a fourth! You can have 12 windows, each with separate documents or multiple copies of any document, and copy text from window to window. A single command expands any one of these to the full screen. You can look at a number of source documents, expand one, scroll through it, find the infor-

Continued on page 166

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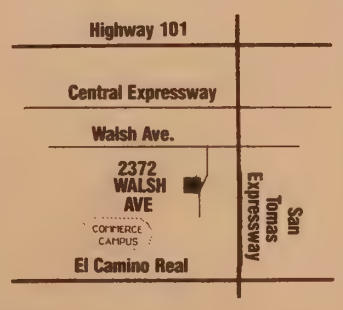

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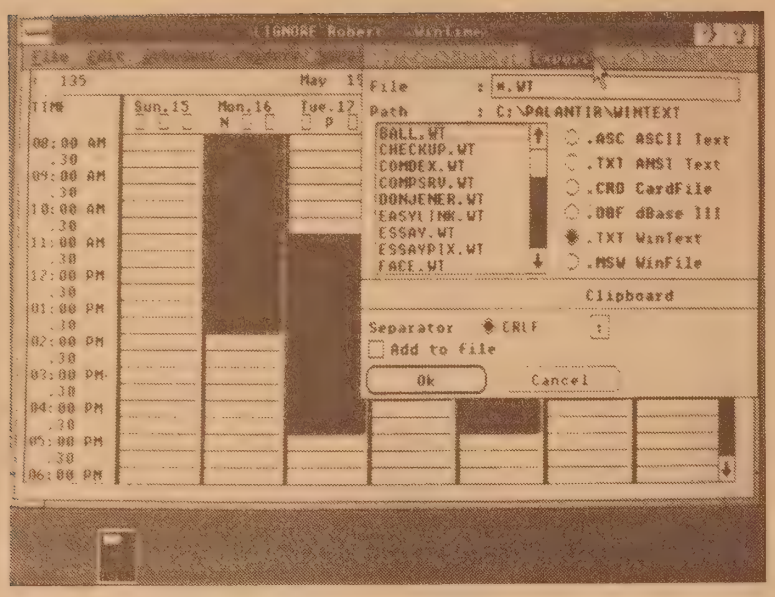
WinTime

Scheduling With Windows

By Woody Liswood



WinTime is a time scheduling program that keeps schedules for up to 65,000 groups of individuals

WinTime is an appointment book and scheduler which runs under *Windows*. In it you can keep schedules for yourself as well as 64,499 other individuals and 65,000 groups. When booted, *WinTime* shows the week to which your computer's internal clock is set.

The typical *Windows* command menu structure is shown along the top, as well as a scroll bar along the right side of the screen. No schedules or appointments are shown yet; you must call up a schedule to get that. The default calendar is a 24-hour one. The default position is 8 am and 30 minute intervals. The top of the window shows the date and the number of days since New Year's on the left and the number of days left in the year on the right. Clicking the mouse pointer on any hour in the time column moves that hour to the top of the screen. You can also use the scroll bar to position the time shown on the screen.

To add an appointment, you must first call up or create a schedule for the person or thing you are scheduling. Since *WinTime* can handle so much data, a business could use *WinTime* to keep track of appointments for an entire staff, as well as track meeting rooms and other time-sensitive events. After calling up the schedule, a double click in the correct time slot allows you to define a appointment type. You can name the appointment, set the time duration, add some text as to the purpose of the appointment, and set a code to tell you what type of appointment it is. Each code is displayed as a separate color for the display screen, so when *WinTime* blocks out the time you have set aside for the appointment, the color will tell you what type of appointment it is. You can change and modify the appointment types as you wish. You can have up to 15 different types of appointments.

Although *WinTime* is easy to use, there still are a number of defaults and decisions to make. Defaults to set, through the file menu, are the normal office hours, the type of display screen you wish, the block size to display, from one hour at a time to 10 minutes at a time, and whether the output will be directed to a printer, to the clipboard, to an ASCII file, or to an ANSI file. The ANSI file is a *Windows* format file which you might use to transfer a printed report to another *Windows* application.

Adding appointments is easy. After adding them, the ease of use continues. You can edit them, move them around, duplicate the appointment at other time frames, and generally highlight and work with any time block you can define.

It is in the edit menu that you create a schedule. You cannot enter any data except into a schedule. To define a schedule, you must give it a Last name. Also requested in this dialog box are first name, password, street, city, state, ZIP code, Telephone number, and occupation; there is room for a short note, if necessary. The default time block is displayed, but you can also override the default here and use any of the options.

While this may seem complicated, *WinTime* can handle vast quantities of data, and you just might be using this type of schedule with a wide variety of individuals, so this information may really be needed by someone not personally familiar with everybody contained in the appointment book.

Since WinTime can handle so much data, a business could use it to keep track of appointments for an entire staff, as well as track meeting rooms and other time-sensitive events.

You must also create a folder. A folder is used to contain all of the appointments associated with anything you can define. You might have a folder for all of your appointments. You may want to keep track of those appointments by client (if you are a consultant); you can create a folder for each client, then add each appointment you make into the appropriate folder.

After you have created these schedules and folders, using them is fairly natural. After you boot *WinTime*, you go to the schedule menu item. There a dialog box displays all of the currently defined schedules. Double click on the one you want and *WinTime* displays it on the screen. I found that since I used *WinTime* just to keep track of my time, all this extra stuff tended to get in the way. Everything worked as advertised; it was just that the program is capable of so much more than I used it for, I got irritated at this complexity. I would appreciate a set of default schedules so that I could just boot the program and have my schedule come up automatically without me having to select it.

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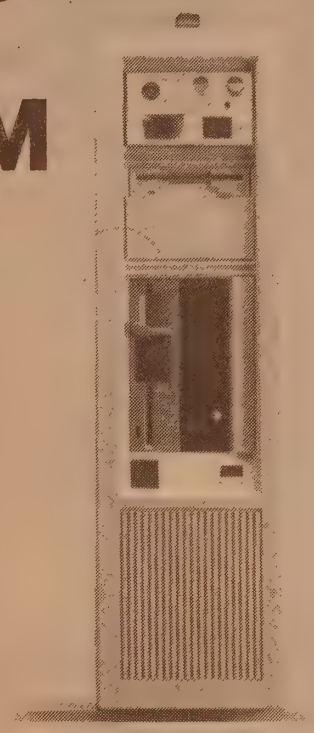

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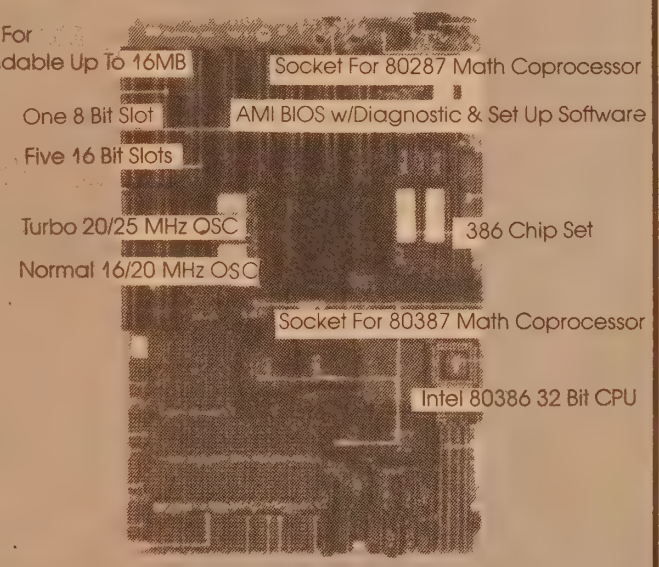
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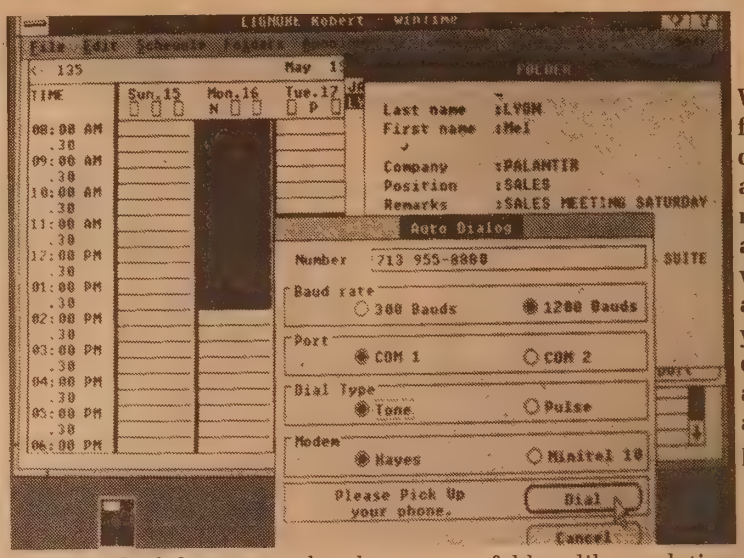

Within folders you can store appointments associated with anything you can define such as a client, a day, or a place.

The schedule menu also has a group feature. You can overlay and compare up to 255 schedules at a time. Let's say you want to schedule a meeting of your staff of 30 individuals, but they never seem to be in the office together at the same time. You would create a group consisting of these 30 schedules. When displayed, any clear areas on the screen show time which is available for all members. You can double click on a free time block, press the space bar, and automatically block off a scheduled meeting for everyone in that group.

Within the activities menu, you can set priorities and deadlines. Doing this can create To Do types of charts with either dates or priorities shown. You can also block work time on your schedule, time when you are not going to meet with anyone but will be doing real work (or at least work which does not involve other folks). If you schedule all of your work projects, assigning dates and priorities as you go, you will be able to list those at any time. Here you can also create lists of appointments for any time frame you choose. You can search all folders or only specified ones. You can also specify any time period you wish. If you cannot remember when you had a specific appointment, search that folder for the past year or so. If you still cannot find it, broaden your search to all folders.

There is a disk menu which allows you to display the current monthly calendar with the current week highlighted. Here, also, you can toggle a time window which will appear at the right end of the title bar.

Lastly, there is an option menu for things that do not quite fit elsewhere. You can change the display so that it appears only on half the screen rather than the full screen. You can set the office hours so that the appointment book only shows a part of the 24-hour day. And, for some reason known only to the progammer, you can create an appointment which does not have a folder...like work-time for yourself. I found that going to this menu each time was a pain, so I created a folder, and put all my work time and other scheduled time there.

Also, here you can add to and change the appointment codes. The set which came with WinTime are 1. Office Appointment, 2. Outside Office, 3. Do not disturb, 4. In-house conference, 5. Business luncheon. I then added four specific clients to schedule time for their work. There are up to 15 codes available. These codes are also kept and updated for you in the WIN.INI file in the Windows root directory.

WinTime keeps a series of files open at all times. If you exit from *Windows* unnaturally, you may have corrupted those files. You can force a rebuild which resets those files to a usable format from within *WinTime*. If you turn off the computer without exiting, then boot *WinTime*, the rebuild may even be done automatically for you.

You can get printed reports for schedules, folders, and lists. Nothing special—this is the weakest area of *WinTime*. With this sophisticated and capable appointment schedule, I wanted a GANTT type of chart available for selected schedules or folders. Also useful would be an appointment calendar printout which I could cut and keep in my pocket, or an appointment book, so I can take my schedules with me and not have to write them in my book as well as key them into *WinTime*.

Summary

A very good appointment scheduler. With the capacity to handle any size organization, this program may be a good reason go acquire *Windows* and put it into your business and personal environment. (Palantir, 713/955-8880.) ■

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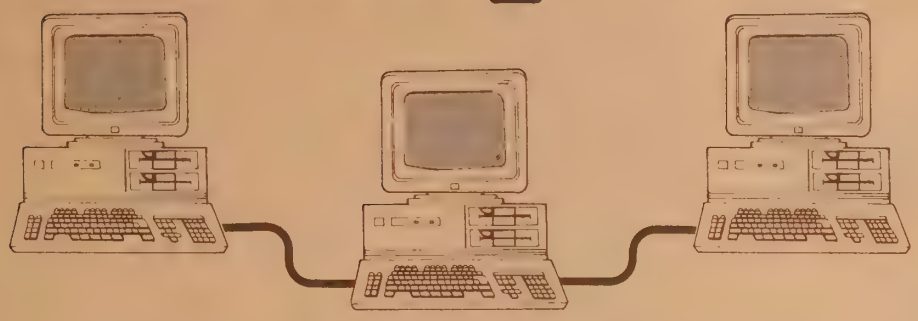

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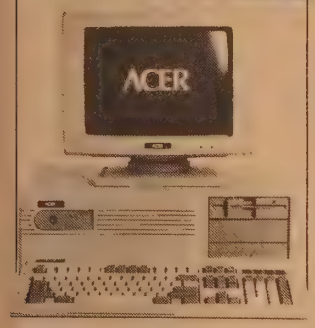

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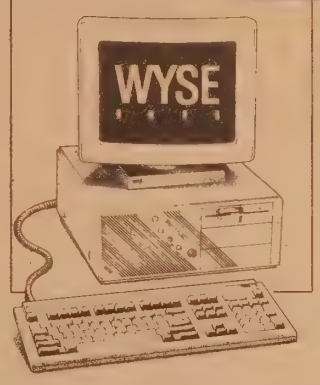

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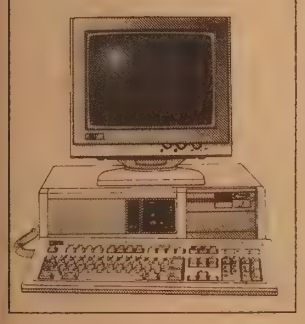

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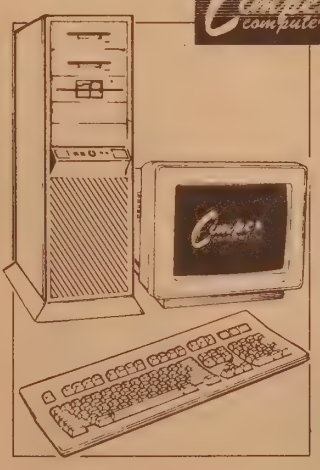

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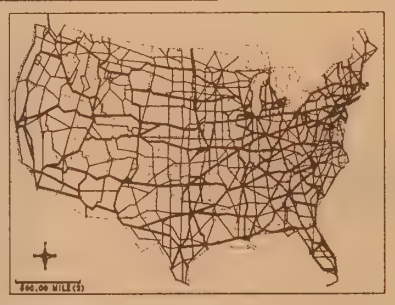

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R E V I E W S

The ABCs Of The IBM PC And Compatibles

Second Edition
By: *Joan Lasselle and Carol Ramsey*
Published by: *Sybex*
Reviewed by: *Robert D. Athey Jr.*

Introductory computer books range from absolutely opaque and jargon-filled (like the documentation for the IBM computers of the '60s and '70s) to lucid and helpful information expressed in real-people talk (like *The Women's Computer Literacy Handbook*). However, the majority lie somewhere in between, trying to find the interested users who really want help and are motivated to fish out the details. Sybex has quite a varied series aiming for this audience; this particular book is best for the complete novice.

The opening chapters deal with questions like "What is a computer?" "What is a peripheral?" "How do I set it up?" "How do I turn it on?" "What keys do what?" There are detailed diagrams, even of the various keyboards available; another diagram shows where specific keys are on the keyboard, and highlights them for particular explanation.

The authors' explanations of what you can do with certain commands is quite lucid. In at least two instances, they use the highlighting technique mentioned above to show what keys are to be depressed simultaneously. (Minor quibble: there are two errors in highlighting in the diagram illustrating CONTROL-NUMLOCK or CONTROL-BREAK, as the book highlights the two indicator lights instead of the keys. However, the reader will figure that out fairly shortly.) I would like to have seen the DOS uses of the function keys (I love the F3 "repeat last input"!) at this point in the book, rather than deferring to their later usage within programs like *Lotus* or *WordPerfect*.

The authors discuss the necessary caveats in the matter of disks, but miss an opportunity to show what some of the commands they recommend can really do. Their recommended uses of the CHKDSK program were limited to reporting disk space and to "computer memory" (Why not call it RAM, anyway?); the /v and /f options are really important to a user with disk problems. However, the new user may not want to inundated with all possible uses of a program.

The authors' give a good solid general introduction to programs, from those making/removing/changing directories to applications. Sensibly, they emphasize the importance of backing up programs and data.

The last chapter covers trouble shooting, with some good checklists, but its final paragraph on where to go for help is woeful in its dependence on commercial assistance (service contracts, computer sellers, etc.). I'd much rather see commercial service outfits as the last option, after the local in-house guru and the local user group!

The appendices are a good attempt at covering a bit more the user will need. The first appendix is on installation of the computer, including finding a good location. It notes that the screen should not directly face a light because of glare. The diagrams of what power/CRT/keyboard cables connect where are great, and there should be more of them showing printer and modem hook-ups. The second appendix tells how to handle a floppy disk machine, and the third appendix is a glossary of some terms used by computerists. "Hard copy," "nerd," and "kludge" are listed, but "subdirectory" and "batch file" are not (the former is in the index). The last appendix is a list of "resources" where one can learn more about the computer: magazines, commercial databases, and the email/information services. The second magazine on their list is *BYTE*, and that's like telling a new driver to get a Chilton! Cut that list into three degrees of difficulty, please. Again, list the user groups, please.

One of my CP/M-using friends asked for books to lead him and his associates into the morass of MUSH-DOS, and this book was the top of the heap I gave him. I suspect this is the first book for a beginner to read, and then (a month or so later) one of the other more detailed Sybex books as a follow-up or reference. Indeed, this would make a great present for my daughter, who's fighting the government issue personal computers in the civil service. If you are a computerist, you don't need this book. If you teach neophytes, or have a library for neophytes, or if you are a neophyte, get this book.

Tiny Turbo Board

From: *Orchid Technology*
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Reviewed by: *Robert D. Athey Jr. and Stewart W. Pugh*

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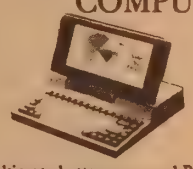

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slow. Any help in speeding it up is a real aid for those who do lots of calculations—massive *Lotus 1-2-3* runs, perhaps, or CAD, graphics, and animations—and the Orchid Technology Tiny Turbo is aimed at just those power users.

The board comes well packaged and accompanied by documentation. Despite our fears about installing the board ourselves, it turned out to be quite easy—simply take the top off the computer, find a slot next to the motherboard slot and insert the "Tiny Turbo" half board. The switch which allows you to operate at "normal" or "turbo" speeds sticks out the back of the computer as if it were a printer or modem cable connector.

Removing the microprocessor is always a worrisome task since it's easy to destroy the chip by breaking pins. We removed the processor from the motherboard, put it on the Tiny Turbo board, and plugged the board's jumper cable into the microprocessor socket. It was tight putting the jumper cable back into the motherboard, and we had to remove a few other plug-in boards just to get maneuvering room. Other than that, the installation was straightforward. Orchid offers a 15" ribbon cable instead of the 3" cable we got, and it may be desirable to get the longer one.

The *PC Magazine* "BENCHMARK" series of programs help with a measure of many of the speed characteristics of personal computers. We used several of those tests to check the Tiny Turbo for speed in the math operations of the computer. The Tiny Turbo is indeed faster than either the 8088 or the V20 in most tests.

Other reports from users show the usefulness of the Tiny Turbo. One person used Tiny Turbo with extended memory (up to 2 Mb conforming with LIM 3.2 specs) as a RAM disk to run *PFS:First Publisher*. Most programs ran in that setup, with the exception of *Flight Simulator* and *Excel*. Another user reported that the Tiny Turbo does not support the EGA card in CAD/CAM applications.

We called Orchid's technical service several times, and the support people were very helpful, even to the point of warning of other possible problems we hadn't yet encountered.

We had some problems with math coprocessor chips under *Lotus*—*Lotus* actually looks for the chip in its socket rather than reading the switch that says the math chip is installed. With the Tiny Turbo switched on, *Lotus* looks and finds the 8087 math chip and proceeds to run in the 286 mode. The 286 processor is told by Lotus that it has a math chip. The Tiny Turbo thinks it means a 80287 math chip it didn't have. If the application requires the math chip, Tiny Turbo expects to have both the 8087 and the 80287 math chips installed when using the accelerator. Orchid also reports that non-fatal bootup errors 1801 and 301 may appear. If so, move the board to slot #7 (perhaps using the longer ribbon cable), as slot #8 has a slightly different addressing scheme. Powering up with AST add-on boards may generate parity errors, and the solution is to switch off switch #8 on the AST board. The Tiny Turbo may be powered on in 8088 mode, then switched to 286 mode to avoid bothering the AST board.

Other calls to Orchid, dealing with cable lengths and with the Tiny Turbo's incompatibility with the Zenith Z-159 computer (it turns out to be incompatible with most Zenith 100 series computers!), got fairly quick response. If the customer service person wasn't available, they got back to us in short order.

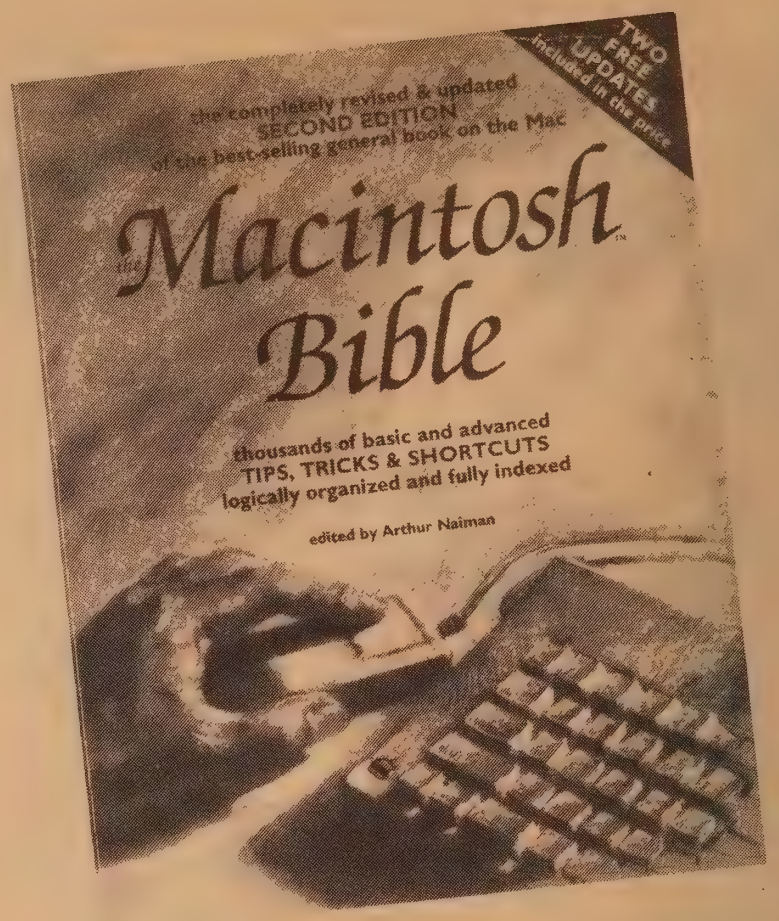
If your work involves a lot of number-crunching, the Tiny Turbo may be a big productivity enhancer. We can envision fractal, CAD/CAM, or very large spreadsheet applications (like a retail store's inventory/ordering/pricing) that would make the Tiny Turbo a worthwhile investment. We recommend checking its compatibility with your existing hardware and software, however. (Orchid Technology, 45365 Northport Loop West, Fremont, CA 94538, 415/490-8586)

The Macintosh Bible—Second Edition

Edited by: *Arthur Naiman*
Published by: *Goldstein and Blair*
Price: *$28*
Reviewed by: *Tony Rocco*

If there's anything they should bundle with each and every Mac besides *HyperCard*, it's a copy of *The Macintosh Bible* by Arthur Naiman. This book, which has allegedly become the best selling Macintosh and desktop published book ever, belongs right there next to your software and hardware manuals. While it doesn't give the hardcore techie all the poop on the electrical goings-on within the Mac, it does provide nearly indispensable user-level information about getting more out of your Macintosh.

With the release of the second edition of the *Bible*, Naiman has added a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thousands of basic and advanced TIPS, TRICKS & SHORTCUTS logically organized and fully indexed
edited by Arthur Naiman

whopping 500+ pages to the book. When you lay out your $28 for this massive reference, you get 759 pages of vital information, helpful hints, and interesting trivia. The beginning and advanced user alike will find the book useful (unless you *really* know everything there is to know about the Macintosh and its peripherals and software).

Naiman begins his book with the Macintosh Ten Commandments, the first of which is: This is the Mac. It's *supposed* to be fun. In keeping with this injunction, the author has assembled 16 chapters, two appendices, and an index of clearly written and entertaining information. Cute icons in the margins give the user a visual cue for locating information of various types, such as very good features, very bad features, very hot tips, and tips that may help beginners.

I was impressed by the deft skill with which *The Bible* puts technical matters into clear terms. The explanation of the difference between bitmapped fonts (screen fonts) and LaserWriter PostScript fonts is elegant and clear. In similar style, along with occasional witticisms and asides, Naiman discusses the Mac, peripherals, software packages, utilities, desk accessories, telecommunications, and system software. *The Bible* is a reference text, but it is so well written that you could easily read it from front to back like any good book.

The information in *The Bible* comes from numerous Mackers including *MicroTimes*' own Paul Hoffman, *MacWEEK*'s Dale Coleman, and *MACazine*'s Senior Editor, C.J. Weigand. These learned persons provide the reader with information that only many Mac-hours of use could give. Here at the office, I wowed my staff-mates with many useful tips provided by *The Bible*. For instance, our creative director was much impressed to discover that she could install fonts and DAs directly into applications rather than the System file. My editor finally found out how to use Key Caps to get various foreign accents over characters. I was duly enlightened by a discussion of font ID numbers and how they can conflict.

As excellent as all this information is, I was surprised to discover one oversight: no discussion of viruses. While Naiman mentions at one point that viruses are a real threat, he doesn't devote any space to discussing them or means of protecting against them (other than to recommend a device to lock your disk drive). Perhaps this topic will be further explored in one of the two free updates registered *Bible* owners are entitled to.

The Macintosh Bible is one hell of a good book. It's the kind of computer reference that no one five years ago could imagine being written. Easy to read, fun, and informative. But then, just five years ago, the Macintosh itself was something no one could imagine. (Goldstein and Blair, P.O. Box 7635, Berkeley, CA 94707) ■

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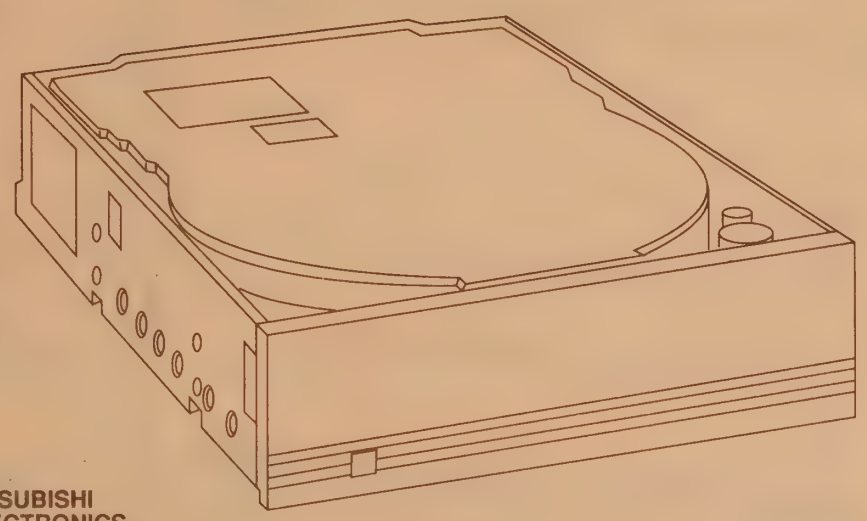

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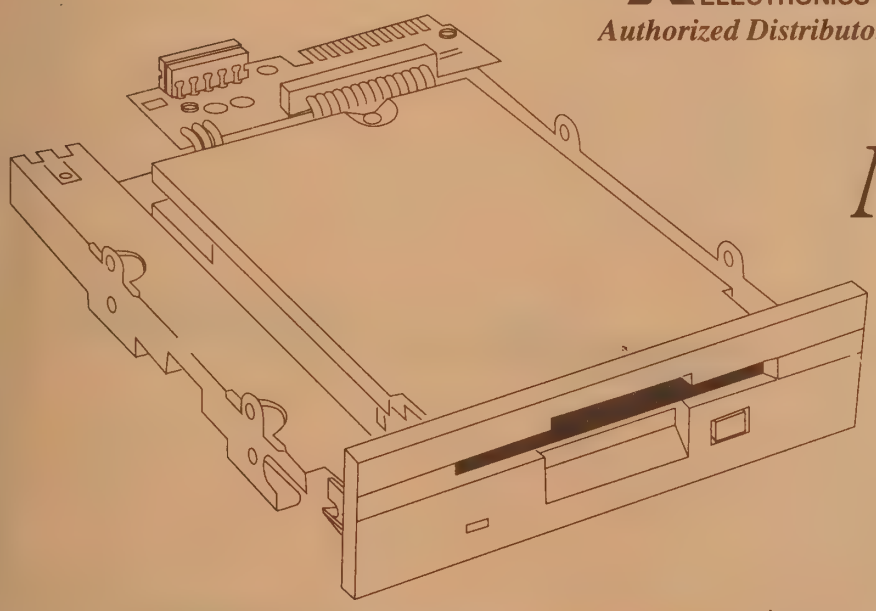

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No frills, no thrills, just a business accounting package that does what its supposed to.

Mac-PC Connectivity *By Robert Beauchamp* **112**
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On Macworld, bimbos, and those darn viruses, computer and otherwise.

HyperCard *By Birrell Walsh* **120**
The Macworld Expo brings us a hyperhistory lesson, SQL with a *HyperCard* interface, and a couple of other applications for this adaptable software.

Mac Accounting With Strictly Business

Little-Known Package Is The Small-Business Accountant's Choice

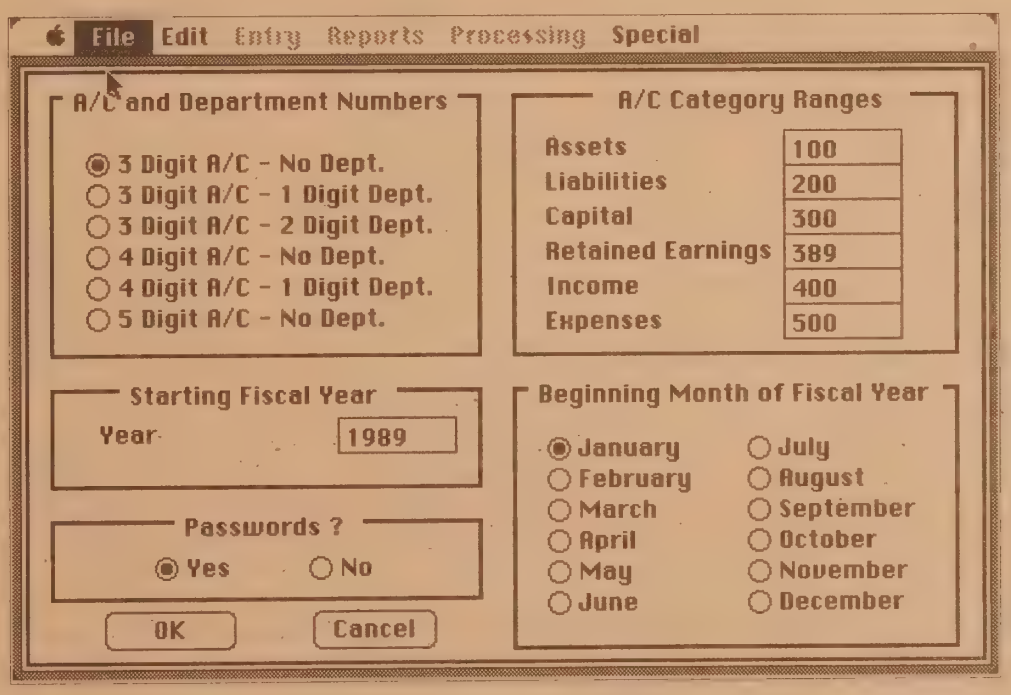
By David R. Satava

I got my Macintosh in May 1984. I fell in love with the Mac because I could perform word processing without reading a manual—never before had a computer been so user-friendly. Besides word processing, the Mac was excellent at desktop publishing, spreadsheets, and graphics.

However, it soon became apparent that the Mac and I were going to have a problem with respect to accounting. I just naturally assumed that the Mac could easily perform the number crunching and computational skills required to run my business accounting; the assumption proved unwarranted.

Over the years numerous software companies have made extravagant claims about their Mac accounting software, assertions that my accounting life would be made significantly easier. Promise after promise has been broken. I am confused, bewildered, and annoyed.

I don't want to go back to IBM and DOS, but I'm still looking for a Mac accounting package that works properly and lives up to its promises.



Initial setup window: Strictly Business offers great flexibility in setting up the parameters of your accounting system.

The Twilight Zone Meets The Accounting Department

Of the Mac accounting packages I've looked at over the last four years, all but one have exhibited serious deficiencies. Some don't add numbers correctly; others don't utilize the Mac's features properly; still others don't retain all your data, or they let you change source documents, or they don't leave

Strictly Business gets about as much respect as Rodney Dangerfield. It's all business. No frills or thrills. Just reliable and straightforward.

clear audit trails, or they allow out-of-balance financial statements, and other major accounting sins.

1 + 2 = 5? One of the earlier packages I reviewed couldn't add numbers correctly. Several years later, its enhanced version still couldn't add numbers.

This is commonly known as field testing. The company either hopes the problem will disappear after mailing or the user won't discover the problem. These companies are inhabited by the spiritual descendants of P. T. Barnum.

Wolves In Sheep's Clothing. When I was a kid, I remember cartoons of the wolves who would dress up in sheep's clothing. I always knew that they were fictional characters. But lately I've been reconsidering this premise.

One of the biggest problems to date has been the accounting packages ported over from the IBM world. Shades of Superman and the Bizarre world.

In order to get a quick foothold on the Mac Marketplace, these wolves in sheep's clothing have been presented as accounting Messiahs. These packages should be renamed "DOS on a Mac." One package I tested couldn't even use the mouse. These ported packages claim that eventually they will look and feel like a Mac. In the meantime, you will pay for each upgrade.

Happy (Audit) Trails. Many years ago Roy Rogers sang a simple but eloquent tune: "Happy Trails to You." Many people thought he was referring to horseback riding. He wasn't. He was alluding to the most important accounting concept of them all. The accounting process must leave a trail that is verifiable and traceable.

One highly-touted package doesn't retain or use all of the information or data you have to type into it. It only selects a small portion of data to be stored by the computer. This package acts more like a glorified typewriter. You must keep all of the computer printouts if you ever want to do any detailed analysis. The software acts like a road map, informing you which piece of paper has the information you need.

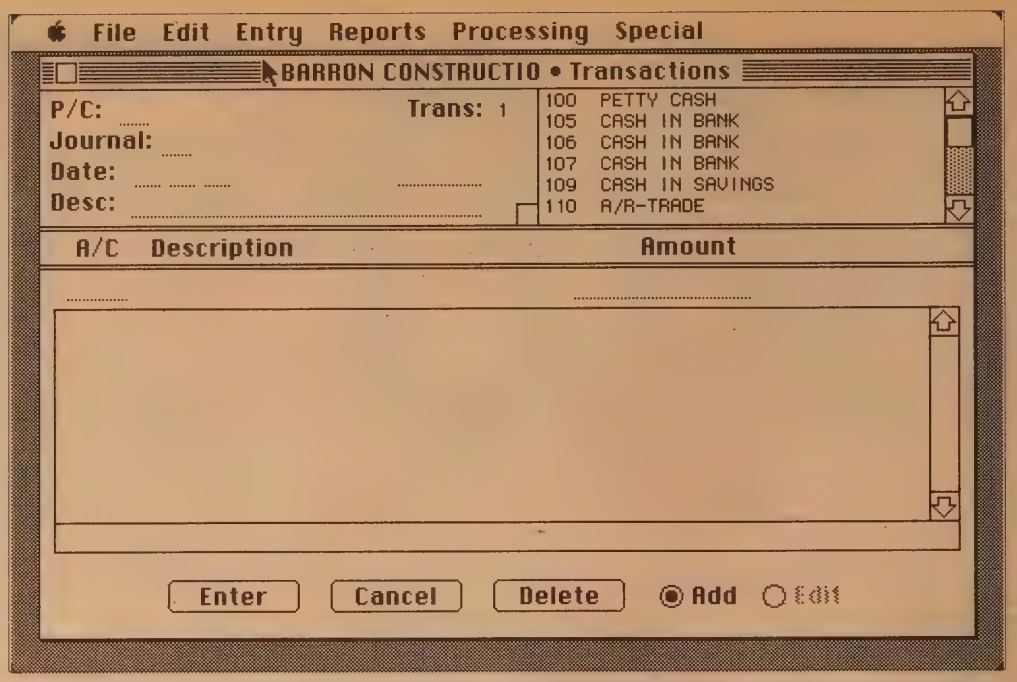
Why have a computerized accounting package if you must maintain and frequently use all of the printouts? If you thought your auditor was already unfriendly, wait until he starts down this audit trail. Worse yet, wait until you receive his bill.

Now You See It... One package even permits you to change the source document at any time. This means a report could be prepared, and all of the accounting evidence used to create the report could easily be altered and eliminated. One client I have loves this because she can always eliminate her mistakes. And so can her employees.

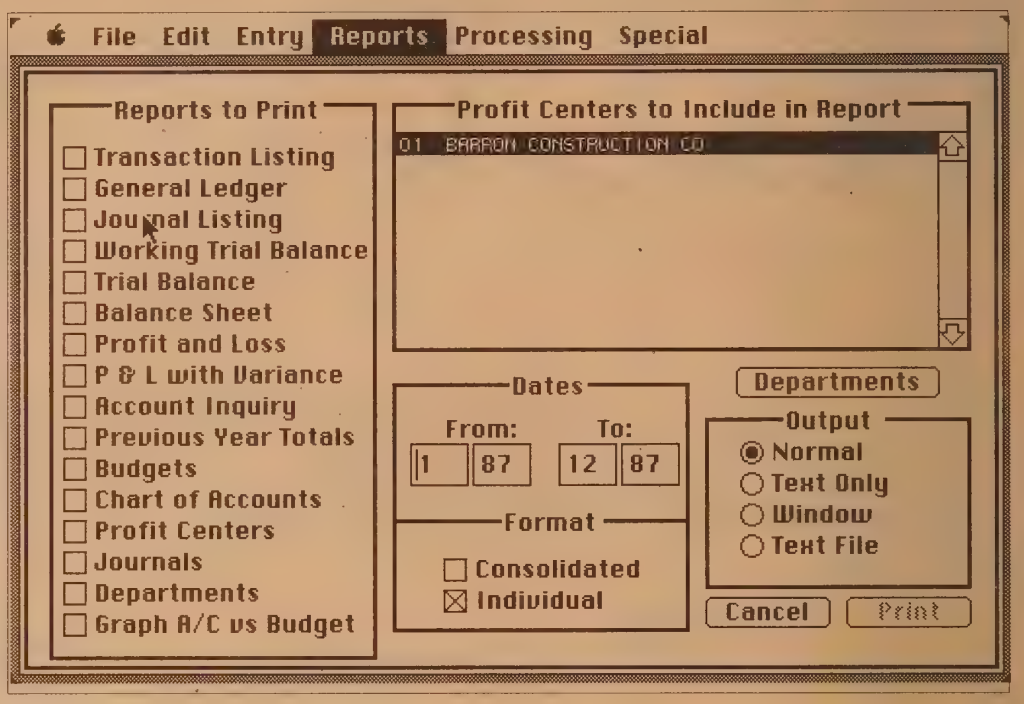
A superior accounting package would never let you eliminate records that have been posted. Subsequent correction entries are possible, but never the ability to eliminate an original source entry. This would never be tolerated by Roy Rogers. Rod Serling yes, Roy Rogers no. There must always be a trail detailing your trip from start to finish.

Tangled Webs, Or The Long And Winding Road. One of the first packages that I looked at lacked a cumulative general ledger. What this means is that if you wanted to review the history of one account you would have to wade through 12 separately-generated monthly general ledgers. Rod Serling would have loved this one also.

A World Out Of Balance. One package touted the great flexibility of the financial statement design feature. It was so flexible that it was easy to create an out-of-balance financial statement. This package violated the Italian accounting law that debits equal credits. Indeed, the package was flexible. Debits could exceed credits any time you wanted them to. The truly good accounting package will not permit this.



Data entry window: Data entry is simple and straightforward; a scrollable chart of accounts screen makes a variety of information readily available.



Report window: Strictly Business allows the easy generation of a wide variety of reports.

This package has numerous reporting features that can be viewed from the window, printed, or created as text only. In addition, a text file can also be created for exporting the data to other software.

The Big Screen. I have always liked it when I could print a report to the Mac screen. This saves time and money. Unfortunately, two packages ported over from IBM couldn't retain what was displayed on the screen. For example, if you have a profit-and-loss report exceeding one page, you'd better have a photographic memory. You're going to need it. Once Page One disappears from the silvery screen, it's gone.

Have you ever seen a one-screen financial report? I haven't.

Windows. Accounting can be a complex process at times. It is therefore imperative for the user to move around various sections the program easily. Windows are the vehicle by which this is performed.

For example, if you need an account number, how easily can you locate it? One package I reviewed required the user to completely back out of the section he was in, locate the chart of accounts,

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EDUCATION

- ☐ **Facts (1525)** - Teaches kids the states, presidents, capitals, etc.(CGA)
- ☐ **Typing Tutor (1550)** - Improve your typing skills with this friendly teacher!(CGA)
- ☐ **Computer Tutor (1562)** - If you are a new user or computer novice, THIS IS WHAT YOU NEED! Learn in a fun, pressure free environment.
- ☐ **Geography (1526)** -Make learning fun with this geography trivia game.
- ☐ **BibleQ (1552)** - Test your Biblical IQ. It's fun, too!
- ☐ **Spanish I (1505)** - Excellent instruction for the beginning student or world traveler.
- ☐ **Spanish II (1506)** - For those who wish to continue where Spanish I leaves off.
- ☐ **Math Tutor (1529)** - Takes a fun approach in helping kids improve their math skills.
- ☐ **World (1537)** - This menu-driven program makes it easy to obtain information about geography (capitals, countries, and more).

UTILITIES/APPLICATIONS

- ☐ **MasterKeys (1300)** - Like the popular Norton disk file utilities, only better!
- ☐ **Desk Mates (1375)** - A disk full of Sidekick-like desk accessories.
- ☐ **HDMenu III (1379)** - Puts all the programs on your hard disk on an auto booting, one-touch menu! Has security features, unlimited menus, and a phone dialer.

IBM ▶ ▶ ▶ ▶ ◀ ◀ ◀ ◀ MACINTOSH

- ☐ **Banner Maker (1801)** - Make banners of various sizes and styles with this disk.
- ☐ **PianoMan (1902)** - Record, edit, and then play back your favorite tunes. Also turns the keyboard into a musical instrument ?!

GAMES

- ☐ **Striker (1400)** - Arcade helecopter attack game. Bomb and shoot enemy targets.(CGA)
- ☐ **Baseball (1415)** - A strategy oriented approach to the great game.
- ☐ **Q-Bert (1403)** - Play the famous arcade hit on your computer.(CGA)
- ☐ **Backgammon (1404)** - Play against the computer. Centipede is also included.(CGA)
- ☐ **Monopoly (1405)** - Great color and sound. (CGA)
- ☐ **JetSet (1407)** - A great jet flight-simulator.
- ☐ **Infiltration to IBM (1417)** - In this text-adventure game, you are a secret agent.
- ☐ **RISK (1436)** - For all of us who love the great board game. Conquer the world!(CGA)
- ☐ **PacMan & More! (1421)** - Several arcade hits including two PAC-MAN games.(CGA)
- ☐ **Wheel of Misfortune (1422)** - A really fun version of the classic TV gameshow.
- ☐ **Master the Market (1425)** - A stock market simulation game. More options and better all around play than the popular "Millionaire" game.
- ☐ **Kid Games (1426)** - A set of educational games designed to teach kids in a fun way.
- ☐ **Super Pinball (1429)** - A collection of five great video pinball games.(CGA)
- ☐ **Global Thermonuclear War (1430)** - Inspired by the movie "Wargames".
- ☐ **Video Poker/Ultima 21 (1435)** - The BEST poker and blackjack games available.
- ☐ **Star Trek (1438)** - You are the Captain as you lead the Enterprise into space battle.

Note: (CGA)=Requires Color Graphics Adapter

BUSINESS

- ☐ **MACMail (2000)** - A super mail list manager for MAC. Stores names, addresses, and other vital information and print labels
- ☐ **Payroll (2004)** - Excellent payroll manager. Has everything including withholding deductions, tax tables, forms, YTD, and much more
- ☐ **Finance I (2006)** - Analyzes loans, mortgages, and investments
- ☐ **Stock Charting (2008)** - Charts and does thorough analysis of stocks
- ☐ **Bi-Plane Spreadsheet (2010)** - An extremely powerful and complete program with a multitude of options and functions
- ☐ **Home Inventory (2012)** - Keeps track of all your personal items, expenses, and budgets. Makes it easy to manage all your bills
- ☐ **Checkbook Manager (2014)** - An excellent check register system which helps your to balance your checkbook and track your expenses

EDUCATION

- ☐ **Science (2100)** - Teaches biology, physics, and general science topics (junior high to adult)
- ☐ **Stars (2102)** - Great star charting-astronomy programs — breathtaking graphics and really fun education
- ☐ **Math Tutor (2104)** - Several fun math quiz games—a really great educational tool for kids. Topics for pre-K to high school senior student
- ☐ **Geography (2106)** - Both a quiz and study program for learning states, capitals, and U.S. regional information
- ☐ **Typing Tutor (2108)** - It's easy to improve your typing skills with this excellent tutor
- ☐ **Bible Pursuit (2110)** - Great Bible trivia game

UTILITIES

- ☐ **Disk Utilities (2202)** - Disk and file recovery tools that everyone should have—just in case!
- ☐ **Vaccine (2204)** - Several programs that will check for, eliminate, and protect against computer viruses
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CREATIVITY

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GAMES

- ☐ **Football (2700)** - Be a computer-desk quarterback
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and then return with the needed information. If it is a true Mac package, you should able to have several windows of information accessible at one time.

"Strictly Business"— Help On The Way

So, what do I want and look for in an accounting package? I want my business software to add numbers correctly and to be easy to use and Mac-like. It would be nice if the financial reports were in balance and visible on the screen. But most of all, I want the accounting package to pass my Roy Rogers test.

It's not that I am impossible to please. It's just that I perceive the future and wonder why it can't be here now.

The closest thing I've found to my dream software comes from a little-known company in Washington, Future Design Software. The package, *Strictly Business,* will not do graphics, nor does it prepare lunch or dinner. But if you are serious about your business, it will work well for you. Roy Rogers would love it; generally, though, my current software of choice gets about as much respect as Rodney Dangerfield. It's all business. No frills or thrills. Just reliable and straightforward. It currently includes a General Ledger module, the subject of this review; Accounts Payable and Accounts Receivable modules exist in a somewhat unfinished state.

A general ledger's function is to prepare the company's financial statements. This includes the balance sheet and profit-and-loss report. The general ledger takes all of the various accounting journals (accounting diaries) and compiles them into meaningful financial statements. These financial reports present the company's history using the language of business, numbers.

Many packages require the books to be closed on a monthly basis. Monthly closings reduce accounting details into forward running summary numbers The computer only retains the current month's details. If you have details to be reviewed, you will have to manually review previous computer printouts. This lack of a cumulative trail defeats the purpose for having your accounting on a computer.

Strictly Business's General Ledger module is cumulative; it permits you to retrieve the detailed source documents at any time during the course of the year—from the the software. There is no need to review the paper printouts. It also does not require monthly closings.

The accounting cycle can be summarized as setting basic parameters, designing the financial statements, entering the data, and budgeting and financial reporting. We will follow the accounting process as it relates to *Strictly Business.*

Setting Parameters. This screen requires that the chart of account ranges, profit centers, and departments be established. You have great flexibility in selecting your chart of account numbers: they range from three- to five-digit charts of account numbers with no departments to three digits and 100 departments, or four digits and 10 departments. The last feature is especially valuable for companies which want to keep track of the profitability of a product, division, etc.

Designing a chart of accounts from scratch is not difficult. The chart of accounts is the backbone of the financial statement, so you should design your financial statements prior to establishing the chart of accounts. This is important because, as we will see later, the financial statement design function only operates in numerical sequence.

For CPAs and bookkeepers, previously designed chart of account numbers can be retrieved and modified for new accounts. This is a great time saver.

The package divides the complete chart of accounts into six sections (assets, liabilities, equity, retained earnings, revenues, and expenses). This part is fairly simple except for one small area. Be careful to designate the cost of goods account numbers within the expense chart of account number range. If you include your cost of goods as a subsection of sales, you will not be able to have accurate percentages. This is not a fault of the package, but of the way many of us view cost of goods.

Designing The Financial Statement. The chart of accounts must be designed with the financial statement in mind. Because the design function utilizes the chart of account numbers sequentially, the importance of properly planning your financial statement design can't be overstated. If done correctly, the actual setup of the financial statements can be extremely easy. Within reason, you can design several types of financial statements. For example, you can have an internal statement that lists the accounting figures in great detail, while the banker's financial statement could be limited to displaying only the summarized figures.

Data Entry. This is the easiest section of them all and the place where most of the work is done. There is only one window for all of the data input. The data input section includes the following fields:

- Profit center (you can have up to 99)
- Journals (you can have up to 99)
- Date
- Check or journal number
- Description
- Account number
- Amount

At all times during the data entry session, you are able to access all other reports quickly. This is helpful if you have to review a previously recorded accounting figure before you enter the new information. It is also helpful if you want to create a new profit center, journal, or simply add another chart of accounts number.

A chart of accounts mini-screen is part of the main screen and can be scrolled. This screen can be accessed numerically or alphabetically. Each transaction can be split into their various components. This screen is a marvelous feature and permits up to 200 transactions prior to posting.

Reporting. This package has numerous reporting features that can be viewed from the window, printed, or created as text only. In addition, a text file can also be created for exporting the data to other software. This later feature was very useful this past tax season. Preparing 1099s for individuals who earned in excess of $600 is not one of my favorite activities. By turning the cash disbursements journal into a text file and transferring it to *Excel*, I was able to sort the checks alphabetically. Over 1000 checks were sorted in less than one minute; from this alphabetized list, I was able to quickly prepare the 1099s as required by law.

Another nice feature is the ability to prepare budgets. You can create a budget for each sales and expense category by month, months, quarter, or yearly. Variance reports can then be printed from it—budget comparison of like periods, expenses to date relative to the yearly budget, etc. These features are especially valuable for nonprofit organizations that live and die by the budget process. Since large firms have a mandatory budgeting process, it is a good idea for small firms to analyze the reasons they don't.

Strictly Business works logically and uses most of the Macintosh features. The strengths are the ability to quickly and accurately input data into the computer. The chart of accounts, departments, and profit centers can be expanded and adjusted in seconds. Financial statements can be prepared by month, months, or year to date. All the reports can be viewed on the screen. Many mainframes can't even do this.

In Conclusion

Strictly Business works logically and uses most of the Macintosh features. The strengths are the ability to quickly and accurately input data into the computer. The chart of accounts, departments, and profit centers can be expanded and adjusted in seconds. Financial statements can be prepared by month, months, or year to date. All the reports can be viewed on the screen. Many mainframes can't even do this.

The main weakness is the lack of the accounts receivable and payables module. This is not a major problem for new and small businesses which will never need more than a general ledger.

This is an excellent package and it works.(*Strictly Business* is available from Future Design Software, P.O. Box 9, Colbert, WA 99005-0009, 509/467-9282.) ■

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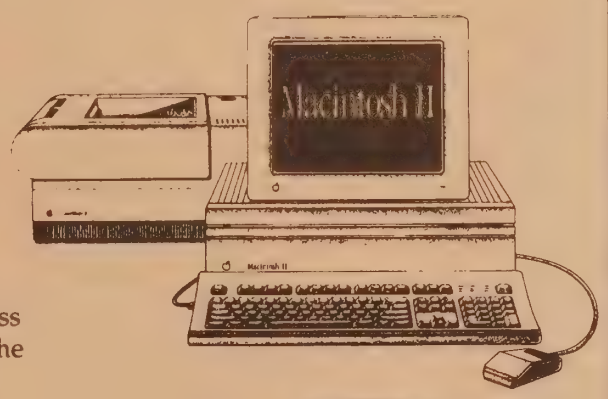

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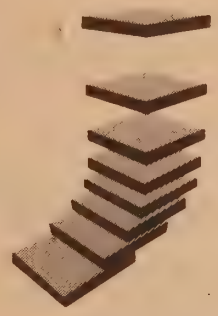

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MAC-PC CONNECTIVITY

BY ROBERT BEAUCHAMP

FoxBase+: Connectivity, Not Excuses

No Ifs, Ands, or Buts, FoxBase+ Offers True Mac To PC Connectivity

Even though connectivity is becoming a more important issue to software developers everyday, it is rare to find one who has more than a nodding acquaintance with the problem. It is extremely gratifying, therefore, to find a company that not only acknowledges and supports Mac-to-PC connectivity, but actually possesses a philosophy. And an uncompromising philosophy at that.

Fox Software, in its development of *FoxBASE+*, a database application for the PC and Macintosh environments, had a goal to achieve. It's clearly stated in the software's documentation: "*dBASE III Plus* and *FoxBASE+* applications from DOS must work immediately and perfectly under *FoxBASE+/Mac* —no sweat, no excuses." I don't know what it is that gets you excited about computers, but that attitude just warms my heart.

You shouldn't make the mistake that *FoxBASE+*'s biggest draw is connectivity, however. *FoxBase+* in both environments is a powerful database with impressive features. Connectivity is only one of its multitudinous attractions.

FoxBase+ in both environments is a powerful database with impressive features. Connectivity is only one of its multitudinous attractions.

As we discussed last month, there are three basic paths you can take in order to move your database from one environment to the other. The first, and most common, is to reconstruct your database structure in your new application in the new environment. You must carefully duplicate the database's fields and their formats. Then you have to take the data from the old database as a text file and place it in your new database, hoping everything fits the way it should. If it doesn't, you massage it until it's right.

The next, and more elegant method, is to take the database and place it, in its entirety, into a compatible application in the new environment. For, example, you can take a database created in *dBASE III Plus* and open it up directly in *dBASE Mac*.

The third, and most impressive path, however, is to be able to take *applications* you've created using your database's programming language and moving them lock, stock, and barrel into the new environment. This is what *FoxBASE+* allows you to do.

CONVERTING FILES

dBASE III Plus programming creates a number of different file formats. Because of the differences between the PC and Macintosh environments, *FoxBASE+* and *FoxBASE+/Mac* handle the conversion of these files differently.

Converting *dBASE III Plus* files to *FoxBASE+* is extremely easy. Since *FoxBASE+* is source compatible with *dBASE III Plus*, all you have to do is open up the file exactly as you would if you were using *dBASE III Plus*.

The file formats that *FoxBASE+* will use are: .DBF, databases; .DBT, memo files; .MEM, memory variable save files; .FMT, screen format files; .FRM, report format files; .LBL, label definition files; and .PRG, source programs.

FoxBASE+ needs to recompile your .PRG files before it can run the programs you've written. It can do this "on the fly" when you run the program. It is recommended, however, that you recompile the .PRG file with the batch file **foxcomp**, included in the package. This will make your source programs run faster and will reduce their loading times.

The only other exception to this open and go formula is found when using dBASE style index files. *FoxBASE+* indexes are smaller than *dBASE III Plus* indexes. When *FoxBASE+* encounters a *dBASE III Plus* index it automatically rebuilds it. New index files will be given the extension .IDX.

Converting dBASE III Plus files to FoxBASE+ is extremely easy. Since FoxBASE+ is source compatible with dBASE III Plus, all you have to do is open up the file exactly as you would if you were using dBASE III Plus.

FoxBASE+ On The Mac

While *FoxBASE+*'s file conversion feats are pretty impressive, what makes it a real connectivity winner is the Macintosh version.

Taking a staid old *dBASE* file and turning it into a razzle-dazzle *FoxBASE+/Mac* file is easy as double-clicking your mouse. This task is made possible with *FoxBASE+/Mac's* excellent use of the Macintosh's graphic interface.

FoxBASE+/Mac takes the files you've created in *dBASE III Plus* and automatically converts them to the *FoxBASE+/Mac* environment. The first time you want to use one of these files you have to open it while in *FoxBASE+/Mac*. After that you are left with a nice Fox-faced icon. As with any Mac file, double clicking the icon opens up the file and application simultaneously.

Using *FoxBASE+* on the PC can be rather intimidating. It presents you with the command line like a faithful centurion waiting patiently for orders. But what orders to give? An extensive help menu provides aid, but it definitely is an environment for the serious database programmer.

FoxBASE+/Mac, on the other hand, easily lends itself to the weekend database warrior. Its menu selections invite you to explore the world of data-

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bases at a leisurely pace. It allows you to browse through databases to get acquainted with them. Then, when you wish to change them around or create new databases, you can use those familiar tools to point and click your way to the database of your dreams. While *FoxBASE+/Mac* lends itself to the beginner, it is in no way a low end database. It is as powerful as its PC counterpart and still manages to be easy to use.

When you do get into the more complex features you'll find a relational database that makes it easy for your databases to relate. With a few ingeneious commands you can get multiple relations in a database program with a minimum of programming. Other advanced features that are supported are user-defined functions and memory variable arrays.

While *FoxBASE+/Mac* is extremely compatible with *dBASE III Plus,* there are a few *dBASE* features it doesn't support. These will be important to you depending on how much you use them in the DOS environment. *FoxBASE+/Mac* doesn't support CATALOG, IMPORT/EXPORT, and suprisingly, for a connectivity masterpiece, there is no suport for DIF, SYLK, and WKS file formats in COPY and APPEND.

One feature that any Mac user will love is *FoxBASE+/Mac's* new picture data type. It is stored in a .DBT file and is much like a memo field in that you can't edit or manipulate it within *FoxBASE+/Mac.* Picture data can, however, be displayed like any other field on the screen. You can also determine the size at which your graphics will be displayed. There is even a way to use them as input buttons.

If you do find yourself missing your PC's unfriendly interface, *FoxBASE+/Mac* has included a piece of shareware from Frank Nichols of Westerville, Ohio, called *IBMKlone.* Useful for those creating documentation for IBM products, *IBMKlone* is a PostScript font that replicates the IBM PC font on the Macintosh. This way if you import a file from the PC the characters will be displayed correctly. Those characters that the Mac does not recognize won't be modified, and you won't have to do as much cleaning up after a file transfer.

Conclusion

While *FoxBASE+* and *FoxBASE+/Mac* demonstrate their obvious connectivity charms with ease, there is one charming area that might not be readily apparent. A program like Microsoft *Word* offers a connectivity solution by allowing you to transfer files neatly back and forth between the PC and Mac environments. You still need, however, to buy *both* versions of *Word.* With *FoxBASE+/Mac,* however, you can jump right into the connectivity field and only purchase *one* new application. *FoxBASE+/Mac's* ability to convert *dBASE III Plus* files directly means you don't have to buy *FoxBASE+* on the PC to have your connectivity solution. While you may become so enamored of *FoxBASE+'s* features that you'll eventually want to own both versions, at least you aren't forced into a huge investment, or forced to forgo connectivity because it's too expensive. ■

With FoxBASE+/Mac, however, you can jump right into the connectivity field and only purchase one new application. FoxBASE+/Mac's ability to convert dBASE III Plus files directly means you don't have to buy FoxBASE+ on the PC to have your connectivity solution.

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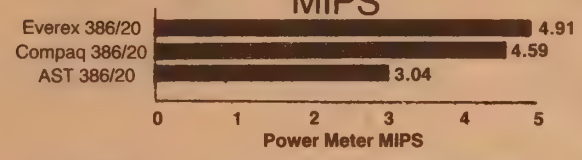

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BMUG

BY DAVID MORGENSTERN

BMUG At Macworld

This month we've got the BMUG Macworld Expo reports and lots of other SuperBowlish stuff. Get ready to yell, scream, and throw beer cans around the room — but in the opposite direction of your Mac.

BMUG Expo-sion

The BMUG booth was the hit of Moscone Center with our typical smarts, charm, and great Expo bargains. The decorations included a "lucky" 13-foot high foamcore board Campanile bell-tower, designed by Bill Woodcock, one of BMUG's designers in residence. We put it up on a table to give it an extra few feet. It was attached to the table by faith and gravity. This force of nature seems to lose its effectiveness around BMUGers — there's always some important disk or document on the BMUG office floor. However, the tower remained upright throughout the show.

Our booth also became a media event, when our *Safe Computing* promotion got proper word-of-mouth. BMUG gave out a free condom with every purchase of our anti-viral *Utilities 8* disk.

Bill also designed the BMUG T-shirt. The front shows a monstrous blue and gold floppy disk (for some unknown reason our *Graphics 8* disk) with *BMUG* in big black letters. The verso shows the other side of the disk (now you'll be able to read the fine print), with the words *The Big Mac Users Group*. I have no idea what that means, but if you want a chance to own one of these limited edition shirts call the BMUG office (415)549-BMUG about availability. A bargain at $15.

The BMUG party (co-sponsored by the Apple User Group Connection, TechAlliance Co-op, Micronetworked Apple Users Group, and the BCS Mac Group) was also a kick. It was held at the Circle Gallery, designed by Frank Lloyd Wright. It was packed with fine art and people.

BMUG's thanks go out to all the wonderful booth volunteers who pulled disks, ran the cash register, and helped to answer countless questions. Our thanks also go out to everyone that decided to support BMUG with membership at the Expo.

Expo-nential Musings

The Expo was held at two locations, Moscone Center and Brooks Hall. Supposedly more than 60,000 people ran around trying to grab their share of promotional buttons, posters, bags, and pens piled high on vendors' tables.

Check out any disk you brought back from the Expo, especially demo programs. Demo disks handed out by at least two one-person outfits were infected with nVIR.

Moscone was filled with huge over-designed superbooths, left over from the last World's Fair. Some designers seem to have taken on the challenge of describing "networking" or "relational database" in a sculptural booth concept. What color is a network environment?

Brooks Hall had more of the flavor of the early Macworld Expos— "old-fashioned and friendlier" were often-heard comparisons. There were lots of interesting startup companies there, too, who seemed to spend more bucks on the product than the packaging.

Some of the hot products BMUGers liked:

- A couple of companies were showing **magneto-optical** drives. These drives use special 600+ Mb optical disks that can be used over and over. The drive mechanisms are made by Ricoh in Japan (where else?). Start saving—they'll cost around $4-6,000.
- **Color scanners** seem to be here to stay. The silly scan-for-each-color contraptions are gone, replaced by single-pass 24-bit color flatbeds. The price is still high, around $5-6,000.
- **MultiClip** by Olduvai is a multi-use product. It replaces the *Clipboard*, *Scrapbook*, and *Puzzle*. Each picture or text put in *MultiClip* gets a little tile and number. You move them around just like the *Puzzle DA*. I'm working **click**, honest, **click**.
- Kennect Technology, formed by some of the guys who developed the Apple **SuperDrive** (the FDHD), have come out with a gizmo, **Rapport**, that fits on a 512E, Plus, or SE external drive port. It allows your internal drive to read MS-DOS formatted floppies. An 800 K external drive plugged into the box will let you read and write Mac and MS-DOS 1.2 Mb floppies. This costs around $300.

An additional $500 gives you the **Drive 2.4**, which allows you to make a high-density floppy hold 2.4 megabytes. The Drive 2.4 needs the Rapport box to work. Be careful—with this combination you'll have no excuse for not backing up your hard disk.

Expo-ratory Surgery

Here's some Expo stuff you'll not read anywhere else (no snide remarks, buddy):

- **The Rose By Any Other Name Booth.** Orchid Technologies, makers of SE color cards, were showing their **MacFax** fax-modem. Or were they?

The box on the table looked like a fax-modem. It had lights that blinked on and off like a fax-modem. But it was really only a toy-modem.

If you looked carefully, you'd see that the **receive data** light blinked when the Mac was turned off. The demonstration was really using a regular plain vanilla modem—under the table.

This puppet fax-modem was spotted by someone who tests Apple's modems and by a BMUG member who writes telecommunication software. Orchid says, "The MacFax is not shipping yet."

Copyright © 1989by David Morgenstern. David Morgenstern is a Bay Area "MacNurturer" and BMUG member. David is DMORGENSTERN on GEnie and himself at (415) 641-7352.

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• **The Vapor Trail Booth.** The world of networking hard/software is not for the faint of heart, or anyone without an AstroTurf-lined pocketbook. *DaynaMail* by Dayna Communications requires a PC server running the Dayna accelerator card. That gives you DaynaTalk, a faster AppleTalk.

The problem is that both the mail program and the PC card are vapor (computer speak for "no product yet"). Does vapor get more solid, or less when multiplied by two?

The Hayes marketing people had a good line on their own vapor updates for **InterBridge**, one of the first Mac products that linked networks together. The InterBridge line was, "Lots of changes are planned for the InterBridge, but I can't tell you about them." Now is it **you won't** tell us, or **you can't** tell us ('cause you don't know anything either)?

• **Business Booth.** Now that the Mac is no longer a toy and has proven itself to be a real business computer, the software marketing departments get to run real show booths. Business people have lots of special needs at shows that require an extra special touch.

Many booths at the Moscone Center (closer to the downtown business center) featured "booth bimbos," or "marketing mannequins." Tight skirts, lots of leg, and blonde hair provide the proper business ambiance for spread-sheet comparison.

This is a crazy backwards situation to anyone involved in the Macintosh world for more than a year or two. More women, or a greater percentage of women, are involved (and have been involved) in real product development and marketing decisions for the Mac, than for MS-DOS products. Many female product managers and representatives complained they were ignored by customers "looking for the boss." Boo!

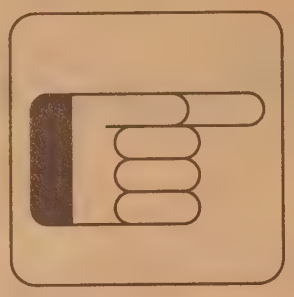
• **The Don't Worry, Be Happy Booth.** The marketing department heads seem to have been pushing the less-is-more philosophy on their demonstration teams. Basic questions were answered with either "Oh, I'm not a technical person," or "Oh, you don't want to bother with that." The presenter would smile, pat us on the head, and plow on. "Let me show you this feature..."

Beating The Expo Flu

One of the great things about the Macworld Expo is the chance to pick things up—pens, demo-disks, and the flu. The weeks before and after the show are prime human and computer infection times. Be careful.

Most upper-respiratory bugs are spread by contact. The person with the cold has the bugs on their hands. They touch and use objects that others contact. The virus attacks the new victims when they rub their eyes, chew their nails, etc. If many people share a keyboard, in an office or laser-parlor, this may be a concern. It's hard to clean a keyboard of viruses, so the best prevention is to wash your hands often while working.

Computer viruses are also passed around during Expo week. Many booths at the show were infected by common viruses that all shareware detectors pick up. Do you think that people running the booths are checking for infection? Some of them barely know the Macintosh, let alone Mac viruses!



Tip:

The SE/30 also comes with the fancy 68882 math coprocessor chip. That will really get your spreadsheet moving, right? Depends on the product. Excel 1.5 doesn't "know" about the new models of the Mac (Mac IIx, SE/30) that sport the math chip. Excel's ability to use the chip was hard-coded for the plain Mac II only.

Check out any disk you brought back from the Expo, especially demo programs. I know demo disks handed out by two small one-person outfits were infected with nVIR.

The Joys Of New Parenthood

Whenever Apple puts out a new version of its operating system software, everyone waits to see which program will have trouble or break. The same holds true with new hardware.

The new SE/30 is a dream-boat to us small box lovers. But don't count on using your old serial Apple HD20 drive. It is not compatible with the new machine. If you insist on using that old drive, you might check out the MacBottom *WSI Conversion Kit*. It turns your serial HD20 into a SCSI drive (for $380+).

The SE/30 also comes with the fancy 68882 math co-processor chip. That will really get your spreadsheet moving, right? Depends on the product.

Excel 1.5 doesn't "know" about the new models of the Mac (Mac IIx, SE/30) that sport the math chip. *Excel*'s ability to use the chip was *hard-coded* for the plain Mac II only. The SE/30 press release says, "This dramatically improves the performance of some spreadsheets..." But not the most popular brand.

Everything Else

It's out on the streets—the new BMUG Newsletter! It has a green marble cover with an animal (it's supposed to be a cat) silhouette. The book has 400 pages of great stuff and should not be missed. It also has section illustrations of Inigo the Cat by the famous *HyperCard* developer, Amanda Goodenough.

The only way to get this amazing tome is to become a BMUG member. Membership is $25 for a six-month term and $40 a year.

Upcoming Events

February 23: *VideoShow Professional* (Presentation Software), Mansfield Systems *Table Tools*, Priam Hard Disk Drives.

March 2: ThunderWare, Logitech *ScanMan*, Insight Development (HP Printer Drivers).

March 9: Coda *Finale*, Lundeen and Assoc. (MS *Works* add-ons), Utopia Software *Flow Phraser*.

March 16: OverVue's *ProVue*.

March 23: Silicon Beach *SuperCard*.

What Is BMUG?

BMUG is a non-profit educational corporation promoting the exchange of information. Like any growing organization it is many different things to its 6000+ international membership.

BMUG, Inc. is a computer user group located in Berkeley, California. The group specializes in computers using a graphical interface. For a while that meant the Apple Macintosh™ but now includes other makes, models, and operating systems, including the NeXT best thing. BMUG supports many Special Interest Groups (SIGs), a five-line BBS, help-line, software library, weekly meetings, and much more. BMUG also puts out a semi-annual 400+ page book that we call our "newsletter." Our motto continues to be: *We're in the business of giving away information.*

Come and join in the dialogue every Thursday evening, 6:00-9:00 (or whenever we finish), in the Physical Sciences Lecture Hall on the U. C. campus.

The BMUG HelpLine, (415)849-HELP, provides technical assistance and telephonic hand-holding during business hours (10:00 am- 5:30 pm). If your question can't be answered on the spot, we try get you in touch with someone who can help. Of course, not every problem can have a happy ending—but we try.

BMUG has one of the most up-to-date, comprehensive software libraries around with 300+ double-sided disks filled with the latest versions of public domain or shareware programs and *HyperCard* stacks. New disks are unveiled almost every week at the Thursday general meeting.

Our BBS offers many of the latest versions of files in our software library as well as news, private mail, rumors, etc. The BMUG BBS is part of the worldwide EchoMac Network on FIDOnet; by calling a local FIDOnet BBS in your area, you would then be able to get in touch with us wherever you are as well as send mail to users everywhere! BMUG is now a part of the international USENET network. With our multi-line capability you are now be able to have access to BMUG almost 24 hours a day. It's easy to use, fun, and a great resource.

To get some further information about BMUG please write to: BMUG, 1442A Walnut Street #62, Berkeley, CA 94709. If you prefer to phone our business office call (415)549-BMUG. ■

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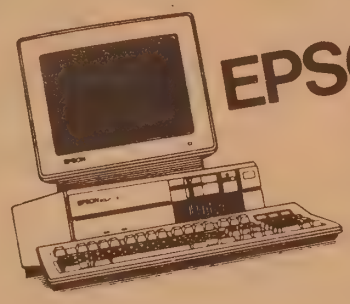

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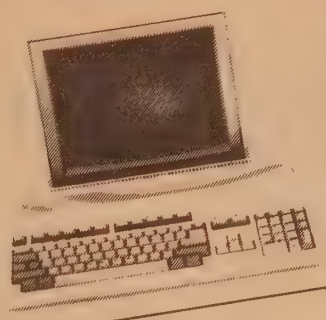

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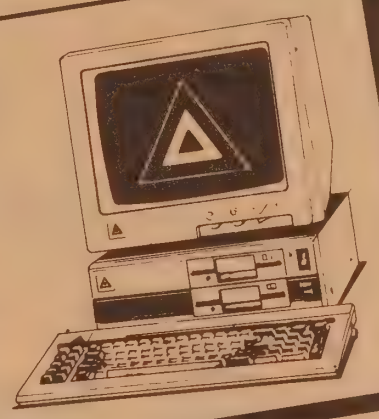

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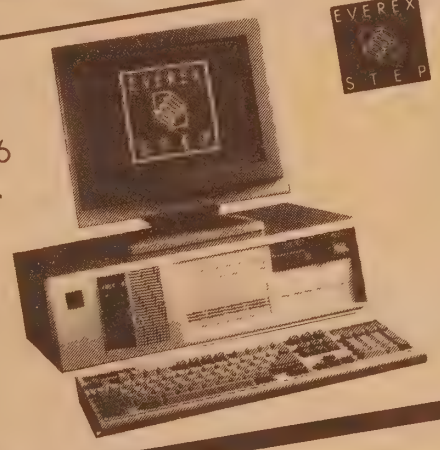

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HYPERCARD

BY BIRRELL WALSH

Historical HyperCard At The Expo

Macworld Expo (this year estimated at over 60,000 attendees) was a medieval fair. Narrow alleys threaded between stalls. Tall booths from the great mercantile companies displayed wares from Mountain and Great Plains. Lord Sculley walked through the town that had grown up around his holding, surrounded by his retainers. Musicians played and players danced. From the antipodes came Australians, so fierce that their Queen must live in a country far from them. People debated in French at the MainStay booth. Magicians promised that one could fly, as with *Wingz*.

Trade shows like Macworld are the true descendants of the fairs of Europe 600 years ago. A fair was the one place you could get anything, absolutely anything. I got a cable I had been looking for for a year, and I came home from the fair as pleased as a Venetian merchant with a load of spice.

Hyper-History

At the same fair I found a remarkable product that talks about western culture from a variety of viewpoints, using *HyperCard* in all its phases. *Culture 1.0* ($175 from Cultural Resources, Inc., 7 Little Falls Way, Scotch Plains, NJ 07076) is a scholar's venture into *HyperCard*. Walter Reinhold is an organist and a music teacher who collaborated with *HyperCard* programmers to produce a seven-disk stack set.

Like many books, *Culture 1.0* includes essays and pictures about the cultural history of western humanity. It has a set of essays introducing you to the periods you are examining. I have read a lot of history, and I appreciate the light, lucid tone of these introductions. The essays are full of "hot keys" that will take you to various subsections to find out more.

I began in the general essay on the Renaissance, and noticed that Music was in bold type—a sign that it was a link to more information. I clicked on it and ended up in the section on Renaissance music. A "return" button had appeared on the side of the card, and by clicking on it I could return to my original location. If I went on from the Music essay to one of its links (say to a picture of that patron of the musician Dufay, Philip the Good, the Valois Duke of Burgundy from 1419 to 1467), the return button will only take me back one step (to music) rather than all the way to the general essay on the Renaissance. That failure could use fixing, as no one likes to go exploring in hypertext if they can only return one step.

Pictures of art and architecture from classical times to the present have been digitized and built into the stack. It is possible to see many of the works of art which are being discussed, though bitmapped images are not yet as good as photographs.

This text-stack has highly structured themes. Each period (Biblical, Greco-Roman, Medieval, Renaissance, Baroque, Classic, Romantic, and Twentieth Century) is cross-indexed by topics. You can look up history, religion, philosophy, literature and music on a grid. For each subperiod of each epoch, there are entries for each category. You can read about music (for instance) through a whole period, or you can read about various aspects of a single time. *Culture 1.0* uses hypertext to organize cultural history along multiple dimensions.

It includes also a number of things you could do only in *HyperCard*. When you study music in *Culture 1.0*, you get samples of the music you are studying. You can build your own threads through the stacks. You can also make notes anywhere in the stack. You can keep these notes in the stacks, or export them to your word processor.

I was pleased to discover that the stacks of *Culture 1.0* are not locked. You can extend and amplify on what you find in the stacks. It is possible to use the product as a base for much more detailed extensions in your own field.

Updates and CD-ROM extensions of *Culture 1.0* are planned for the next year and a half. The CD-ROM versions should help Apple hold their dominance in the educational market. I am very eager to see one extension: *The Music Tours*. Advance literature describes it as a set of six 800 K disks that explore the music of these periods in greater detail.

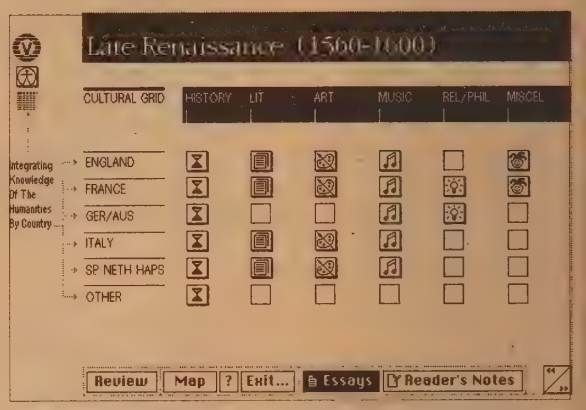
The publishers of *Culture 1.0* had not fixed their site-licensing policy by the time they came to Macworld. I expect they will negotiate a good deal for universities that want to buy a number of copies. This is the first commercial academic stack-set that I have seen. It won't be the last, for there is a natural alliance between hypertext and scholarship.

Stacks And Stacks At Macworld

There were few signs of *HyperCard* in the streets of Macworld. That was my first take. On second look, it was everywhere. This year *HyperCard* is appearing most often as a part of other products. I will review some of the products in which it is appearing in the next few months.

There is a business-planning system with *HyperCard* for an interface. It allows you to make a complete plan for your business before you leap in. (Palo Alto Software, 260 Sheridan Avenue, Suite 219, Palo Alto, CA 94306).

Oracle has used *HyperCard* for a front end to its SQL (which, I find, means "Structured Query Language") database engine. *Oracle For Macintosh* can be used to operate the whole Oracle system, on the Mac and through connections to mainframes. An-



Culture 1.0 offers a hypertext-based approach to teaching Western Civ; students click buttons to read (or hear) additional information on featured subjects.

other system which I expect to review in the column soon is *HyBase* (Answer Software, 20045 Stevens Creek Blvd., Cupertino, CA 95014). It is a database with no front end, because it intends to use *HyperCard* as its interface; it is a kit to build full relational databases in *HyperCard*.

There are innumerable products which have used *HyperCard* for their help system, and there will be more. Symmetry (761 E. Broadway, Mesa, AZ 85203) is licensing its *HyperDA* engine to other software producers. It will let them call up a help stack (like a Desk Accessory) from their program.

HyperX (Millenium Software, 1970 S. Coast Highway, Laguna Beach, CA 92651) is issuing release 3 of its expert system for *HyperCard*. It is written entirely in hypertalk, so you have access to the code. You have a chance to learn about expert systems in the familiar *HyperCard* environment. It is not just a tutorial, though—it is a working expert-system shell.

I have been trying to get a review copy of something very special. If I succeed, I will tell you about *MacBrain* and *HyperBrain* from Neuronics (Suite 2200, 1 Kendall Square, Cambridge, MA 02139). These products let you look into the next kind of computer: the neural network. ■

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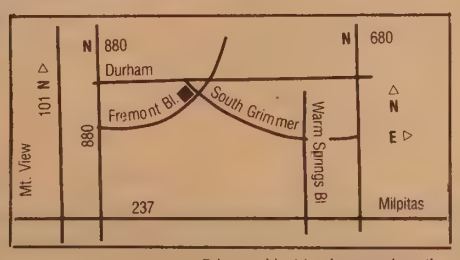

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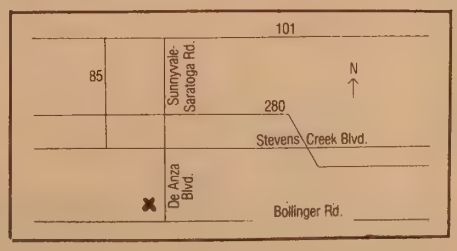

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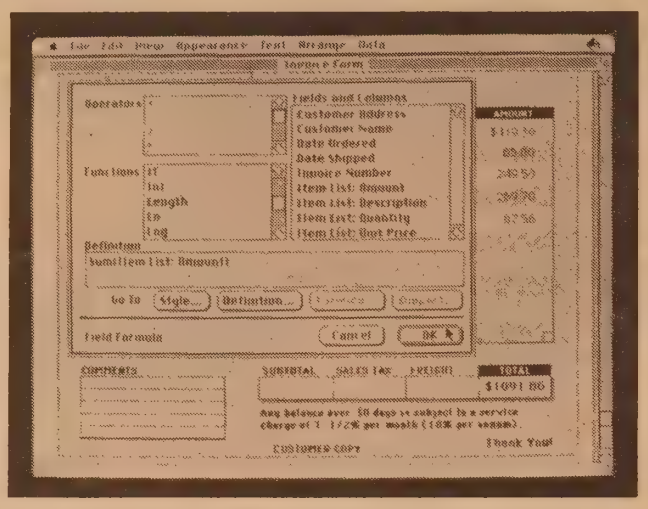
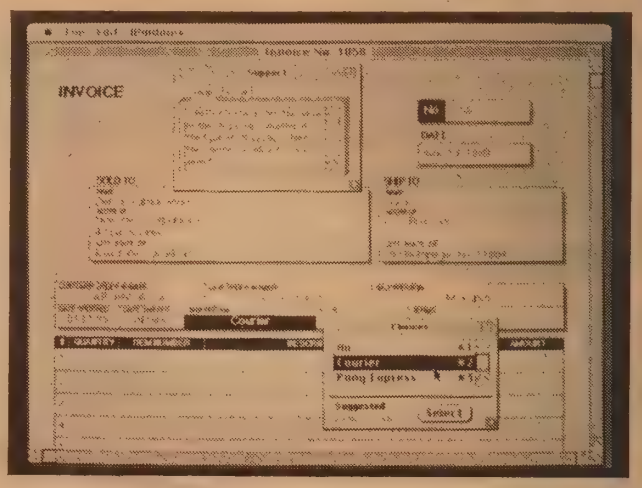
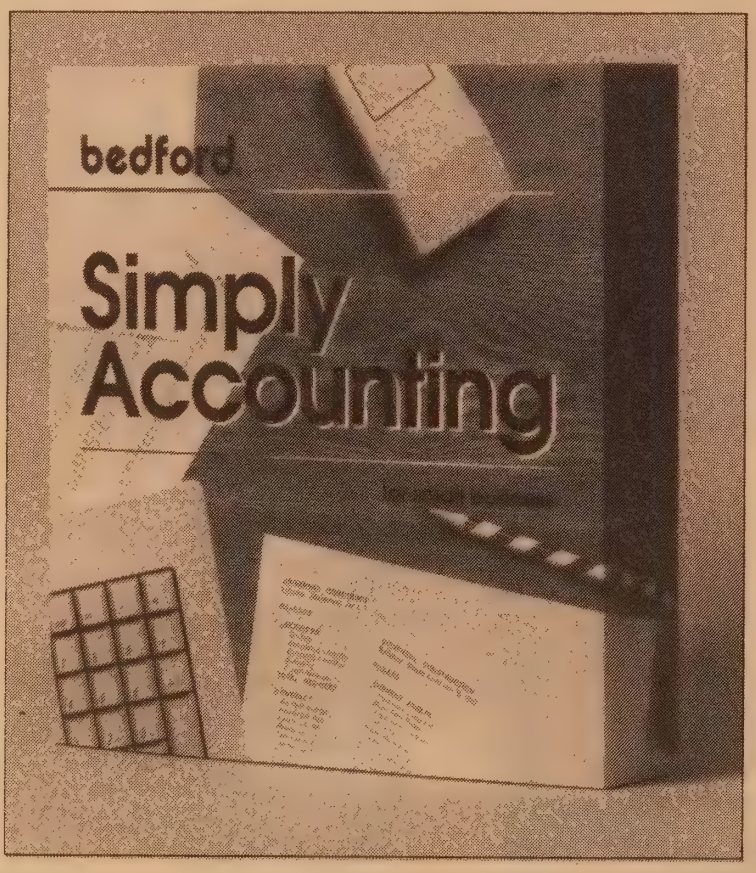


Citing the existence of a hitherto ignored market niche, Claris Corporation has introduced its new SmartForm Series. The first two products in this series, *SmartForm Designer* and *SmartForm Assistant*, give the government or business user the ability to custom design forms and applications and fill them out electronically on the Macintosh. Forms created using *SmartForm Designer* can also be printed and filled out manually. Forms-specific graphics tools contained in *Designer* includes fields with labels, combs, lists, and check boxes. Pull-down menus and floating palettes make it easy for users to find the form tools they need. A variety of printers are supported, including the LaserWriter, ImageWriter, Linotype, and Varityper, as well as others. If a form is routed electronically for completion using *SmartForm Assistant*, designers can build in custom help messages, choice lists, automatic calculations, and data-entry validation and formatting. ($399/49) Claris, 440 Clyde Ave., Mountain View, CA 94043. (415)960-1500.





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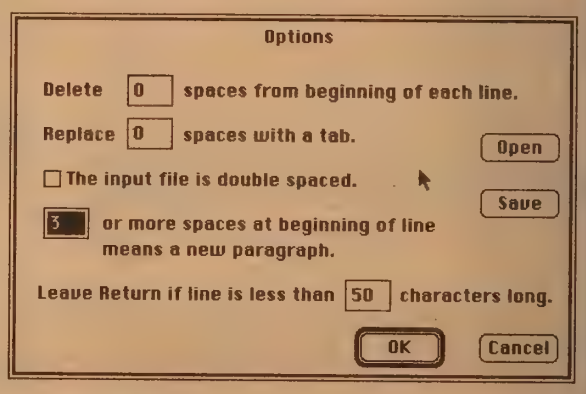
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If you use a Macintosh to edit text (ASCII) files, you may have encountered this problem: the text file originated on a non-Mac machine, and as a result is full of hidden formatting characters. If the document's author formatted it as 40 columns wide, you'll have 40 columns of white space at the end of each line. Or maybe its travels through alien computers have caused document-wide indents at the left margin.

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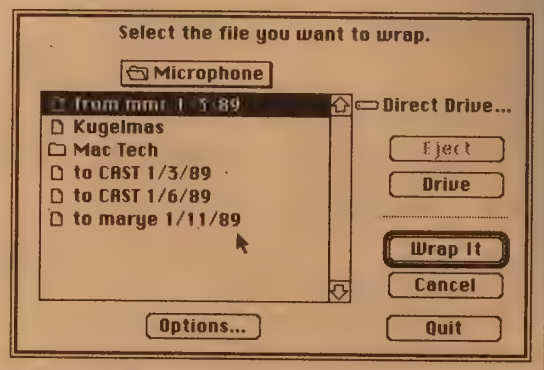

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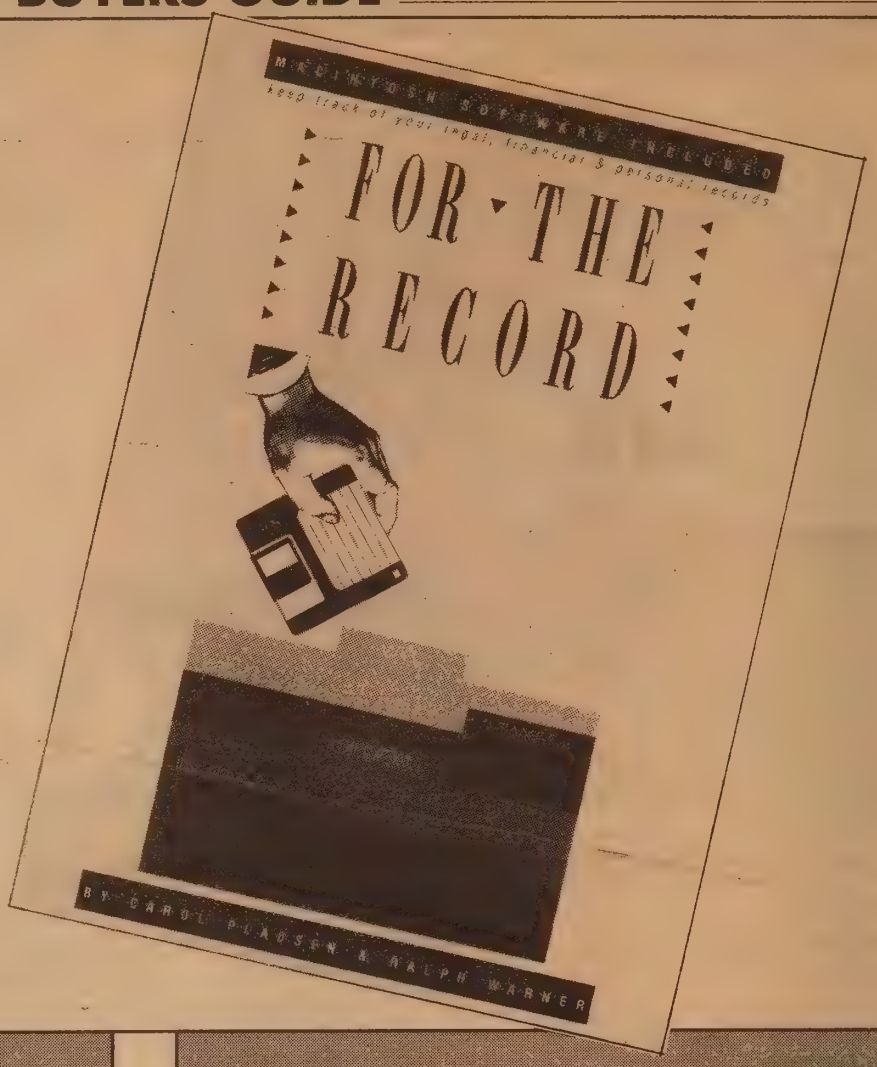
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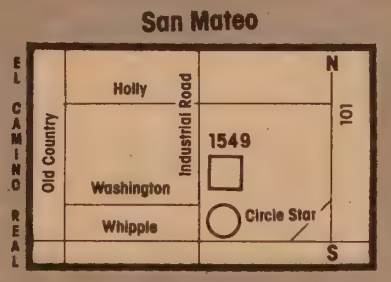

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BY BROCK N. MEEKS

I Believe In . . .

Over the past year I've become increasingly critical of telecommunications, and the computer industry in general. I've heard myself do this in discussions and seen it in columns I've written, right there in cold black-and-white 9-point type. It's almost as if "the dark side of the Force" had taken over and there was nothing left to believe in in this medium.

Just before writing this column I was skimming an electronic news clipping service I subscribe to on NewsNet. One headline read: "101 Things to Do with a Dead Toner Cartridge." The headline immediately following it read: "400,000 Ethiopian Refugees in Somalia Face Starvation."

Those two headlines, and the fact that they were delivered to me via NewsNet, seemed to sum up my frustration. "Only in America," I found myself saying, "could I find these two headlines juxtaposed." It put a lot things into sharper focus.

I logged off and went to rent a video, my mind still humming with the headlines. At the video store there was an advertisement claiming that the movie *Bull Durham* was "Coming Soon." One of my favorite scenes in that movie is Kevin Costner's "I believe in..." speech. From that thought my mind leapt to a clip I'd downloaded long ago. It was a speech made by the late science fiction writer Robert A. Heinlein called "This I Believe."

According the clip, Heinlein's speech was originally broadcast on Edward R. Murrow's show. It was also read by Mrs. Virginia Heinlein when NASA awarded her husband a posthumous award of Distinguished Public Service Medal in 1988.

The speech is moving. I read it over several times. As I did I found myself making several connections to the telecommunications "community." Maybe, just maybe, I hadn't lost all faith in the power and wonder of this medium. And so I began to write my own version of "This I Believe." With credit to Mr. Heinlein for the inspiration:

This I Believe

I believe in the people that make the world of telecommunications a "community." I have probed their faults. I have sketched their virtues. And their virtues far outweigh their faults.

Take Mark Graham of PeaceNet, for example: an Air Force veteran who ran afoul of the system more than once standing up for what he believed in. And though Mark could probably make three times his current salary working for some high-powered software firm, he is dedicated to his conscience, working behind the scenes at PeaceNet in an effort to link like-minded folks around the world via telecommunications. Some have decried PeaceNet as 'bleeding heart liberal ideology." But I believe in Mark and his work at PeaceNet.

Then there is Daniel Ben-Horin of CompuMentor. He fights an uphill battle trying to get struggling nonprofit organizations online and using the power of telecommunications. He constantly fights for funding and carries on a seemingly endless search for computer mentors to help in his struggle. I believe in Daniel.

I believe in my own local community, the WELL. Here you can open your soul online. You can cry out, "I'm hurting," and you will be fed with understanding. Here you will find people such as Howard Rheingold or Kathleen Creighton, who go out of their way to welcome newcomers and take them under their virtual wing, or send a simple message saying, "Hey, I've been there, and if you need to talk, just ask." There are no prescriptions for that kind of medicine. For every jerk who thinks a modem is an electronic spray paint can, there are perhaps a hundred more like Howard and Kathleen, ready and willing to help.

I know that despite all my societal brainwashing about being open with strangers I can "step out" online with my feelings and be treated with respect and understanding.

I believe in this community at large. Despite the sensationalized "hacker" and virus stories splashed across the *New York Times* and on the cover of *Newsweek*, there are thousands of other stories about the heroic efforts of people like Dave Hughes, who single-handedly brought the entire educational system of Montana online—and made it successful.

If it were not so, this medium would have died long ago. Businesses could not be productive. And our rights to information could not be secured. But "good news" is not "prime time news." It is buried in obscure telecommunications columns of "throw-away" magazines, yet "good news" pouring forth from this medium is a force stronger than "the dark side."

I believe in the unselfish efforts of individuals who spend hours re-keying a document from the government, or researching the correct way to format a formal response to the FCC, so the rest of us need only open a copy buffer and download. I believe in those thousands of BBS sysops whose unseen and unappreciated efforts in the dark of night keep this country's most precious commodity—free speech—ready and accessible. And all for free.

I believe in the art of all those shareware authors bringing us communications packages like *ProComm* and innumerable BBS programs. Take a look around the industry. Three-piece suits, multi-million dollar ad campaigns' and secrecy now dominate where once openness and a willingness to share code flourished. And yet these shareware authors, with little hope of recouping all that's due them, endeavor to put humanity and fairness back into the industry. And to make a program easy to use and as productive as their own tireless efforts.

I believe in our legislative folks, too. Sure, most of them don't understand the medium, but it's mostly for lack of education. This is why I believe in people like Bob Jacobson, legislative aide to assemblymember Gwen Moore. Bob gets paid peanuts, and yet he is one of the strongest allies of the telecomm community in Sacramento. Too many times Bob has brought telecommunications issues before the California legislature, only to see his ideas either laughed at or ignored, but he keeps pressing, and sooner or later he'll get results.

I believe in Representative Edward Markey, on the national level. I believe in former FCC chairman Nick Johnson. It is largely because of these men that our community was able to defeat the FCC's ridiculous access rate increase. Markey for taking up the cause and forcing the FCC to hold public hearings, and Johnson for his behind-the-scenes advice on how to best attack the FCC on grounds they understood.

I believe in the United States. Despite rogue national security advisors like Admiral Poindexter who seek to put a hammer-lock on freedom of information access, our nation still has the most open and available information access in the world.

And finally, I believe in the thousands of telecommunicators that I have never known. Those with intelligence and wisdom who do not shy away from tough questions such as freedom of access issues, integrity of information, and access to that information for the "information poor." I believe in the kids—yellow, white, black, brown—who attend Bronx Science high school, who are pushing telecommunications science to its limits.

I am proud to be a member of this community. I believe we have come this far by the skin of our teeth. And that every battle we win, every advancement we put forth, will be by the skin of our teeth—but we will always make it.

I believe that this "white boys' club" won't always be so. That more women are becoming involved, that more minority groups are being introduced to telecommunication and its power. I believe that the power of this medium, the power of information gathered and distributed by this medium, will continue to empower the "little guy."

I believe that telecommunications will carry a message of faith and good will to lesser developed countries, and that the north-south information flow will one day turn around, and we will learn as much from them as they do from us. I believe "the people" will defeat the paranoia of "the government" about the public gaining access to information, in all its forms. I believe this, because everyone has that insatiable curiosity and desire to *know* more and learn more about their world than just what lies within four square blocks of home.

I believe this with all my heart. ■

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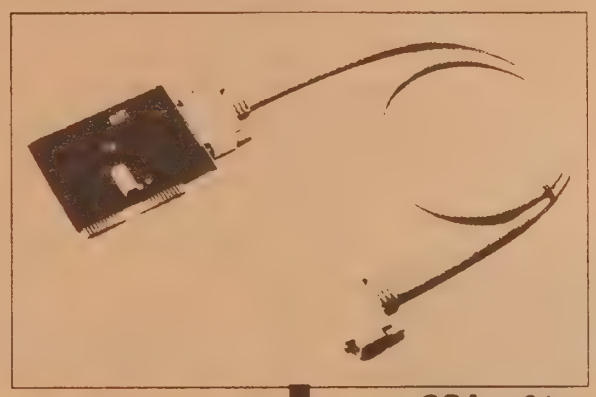

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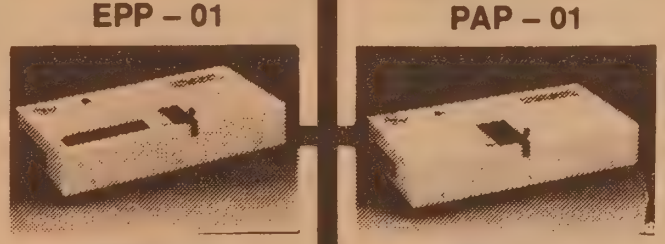

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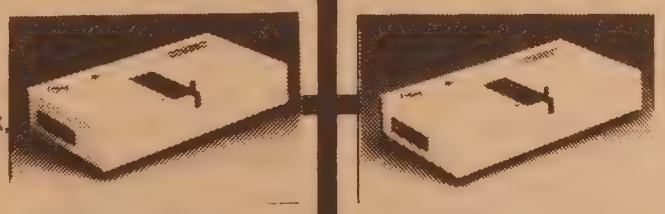

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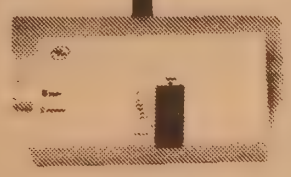

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BY BENNETT FALK

The Regular Expression

The Guru Explains The Mysteries Of Grep

Our friend Hapless User writes:

Dear MicroTimes,
Sorry to be out of touch for so long, but the never-ending quest for UNIX knowledge has taken me to India and Nepal, following a trail of rumors about a great computer sage who lives as a hermit in the Himalayas. Local guides in Kathmandu knew him by the name "Arpananda Bangdollar," but descriptions of his physical appearance varied wildly. With some difficulty I cajoled them into pointing out on my maps where he could be found, but no one would volunteer to lead me to him. Undaunted, I collected the necessary supplies, charged up the battery on my laptop, and set off to meet the man himself.

It took a while, but I did eventually find a hut in the designated spot. I knocked on the door. There was no answer, so I walked in, and there was a rotund little man sitting on a threadbare rug in an unfurnished room lit only by 12 pottery lamps burning yak fat.

It occurred to me that I'd been tricked: what can you possibly learn from a UNIX guru who doesn't even have electricity? Still, I had come too far to go home empty-handed, so I approached him: "Master, I have come to learn the secrets of UNIX."

He didn't even acknowledge my presence! I waited a while and repeated the question. He opened one eye and stared at me. After a very long while he spoke:

"How many five-letter palindromes are there in the UNIX spelling dictionary?"

"What?"

"Palindromes. Five-letter palindromes, words with five letters that are spelled the same backwards and forwards. How many of them are there in /usr/dict/words?"

"I don't know."

"Indeed," he sighed, "no one is born with this knowledge. But how would you find out?"

"I'm not sure."

"You are aware of 'grep'?"

"Grep?"

"Grep."

Oh, good grief, I thought, he's trying to see what I already know, best to play it cool: "Okay, grep. Uh, everybody knows about grep: grep is a UNIX utility for locating strings in a text file. The name stands for Global Regular Expression Print."

"How many 'greps' are there?"

"Three that I know of: grep, egrep, and fgrep."

"How do these greps differ from each other?"

"Well, they're all used pretty much the same way: to search for the word 'newt' in the file /usr/dict/words, you'd just type:

grep newt /usr/dict/words

This command would print any lines from the 'words' file that contained the string 'newt'. The same syntax would work with egrep or fgrep, but I don't really know what the differences are."

He finally opened his other eye: "Then we can begin there. The three greps differ from each other in the kind of pattern they let the user to search for: fgrep searches only for literal strings, grep allows you to search for 'limited' regular expressions, and egrep can be used to search for 'extended' regular expressions. Perhaps you know already what a Regular Expression is?"

Here I am trying to become a kernel hacker, and he wants me to explain Regular Expressions.

"The simplest regular expression," I ventured, "is but a single character, say any letter of the alphabet, or any of the ten digits. You can string these 'atomic' regular expressions together to form more complex patterns to search for. When we grep for 'newt', we're really looking for all the places where the atomic expressions 'n', 'e', 'w', 't' happen to be concatenated in that order. Grep just finds that pattern wherever it occurs; if 'newt' happens to be part of 'newtonian', grep doesn't care, it prints the line anyway. Okay?

Arpananda exhaled wearily. "It is 'okay' so far, but you have described only character constants."

"Well, that's what most people search for most of the time."

"Yes, and why should 'most people's' problems be yours? There is much more to Regular Expressions than character constants. The things I am about to tell you barely scratch the surface. If you wish to learn more, consult the entries for 'ed' and 'grep' in volume one of the *UNIX Programmer's Manual.*

"We start with character constants and then transform them using the 'magic' characters '.', '*', '^', '$', '[', '\'. For example, a '.', a period, a dot, matches any single character, and an asterisk ('*') matches zero or more occurrences of the atomic regular expression that preceded it. Together in a grep command, the characters '.*' match zero or more occurrences of any single character, which is to say, they match everything."

"Oh, wow, cosmic."

"Perhaps so, but not very useful, and I mention it simply for the sake of completeness and because it's an interesting thing to think about on a rainy day.

"More to the point is to take this word 'newt' of which you are so fond and transform it from a character constant into something more interesting. We can begin by substituting a '.' for the 'w', and the command

grep 'ne.t' /usr/dict/words

will find not only 'newt', but also 'neat', 'nest', and 'next': any word that contains 'ne', some character, 't'.

"Now even this simple regular expression gives us many things to talk about. First of all, we want grep to see the '.' we have embedded in the regular expression, but '.' also has a special meaning to the UNIX shell. We must put the regular expression in quotation marks so the shell passes the dot to grep without first interpreting it by its own lights. Most of the magic characters used to build regular expressions are also 'special' to the shell, and it is a good idea always to enclose Regular Expressions in quotation marks.

"It is also true that the pattern 'ne.t' will probably match many word fragments. For simplicity's sake, we can re-formulate the Regular Expression to return only whole words that match our pattern. If we are fortunate enough to be running Berkeley UNIX, this can be done with special tokens to indicate that our pattern should match either the beginning of a word' ('\<') or the end of a word('\>'). With the Berkeley version of grep the pattern:

grep '\<ne.t\>' /usr/dict/words

returns only the words 'neat', 'nest', 'newt', and 'next'.

"Unfortunately these tokens are not recognized by AT&T's version of grep. However, because /usr/dict/words is nothing but a list of words, one to a line, you can use the caret symbol ('^') to indicate where your Regular Expression should be in relation to the beginning of a line and the dollar sign ('$') to indicate where it should be in relation to the end of the line, so the command

grep '^ne.t$' /usr/dict/words

searches for lines that contain only the 'ne.t' pattern."

I already knew a lot of this stuff, but the smoke from those lamps was getting to me. All I could say was, "This is beginning to look a little like Nixon's expletives."

"Who is Nixon? What are his expletives?"

"Never mind. What does all this have to do with

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palindromes?"

"Well, you will have to find that out for yourself, but I must not leave the notation for Regular Expressions only partially described.

"You have seen that a single character matches itself, and that a dot matches any single character, and that an asterisk matches zero or more occurrences of the immediately preceding atomic expression. But I have not yet explained that you may restrict the range of characters for which a match is acceptable. This is done with square brackets ('[]') inside which the acceptable characters may be simply listed. If I gave the command

grep '^n[aeiouy].t$' /usr/dict/words

grep would return to us four-letter words beginning with 'n' followed by a vowel followed by any character and ending with 't'. (It turns out that this command gives us the same four words we got from our previous command.)

"Now there are many things you can do with character ranges. An important one is to negate the range by including the caret symbol (^) as the first character inside the brackets that define the range. This '[^]' construction says essentially that you will accept any character *but* those specified between the brackets.

"Imagine, for example, that we are dissatisfied with the 't' in our Regular Expression and want to substitute for it any consonant. It would be a very great bother to have to list all the consonants in a character class, so instead we write

grep '^n[aeiouy].[^aeiou]$' /usr/dict/words

and grep presents us with about twenty words beginning with 'n' followed by a vowel, followed by any character, ending with any consonant.

"If the characters in the desired range happen to be continuous, we need not even write them all out. Instead we may use the first and last characters separated with a '-'. Let us now dispense with the literal 'n' in our example and ask grep to give us words beginning with any upper case letter:

grep '^[A-Z][aeiouy].[^aeiou]$' /usr/dict/words

This command will give us about 160 words, none of which," he noted with satisfaction, "is 'newt'."

He paused for a while, and I guess I was supposed to ask a question or something, but I was really out of it and ready to crash. "Tsk, tsk, I see you are getting tired, so I will hasten to the end of today's lesson.

"In addition to everything else, you can designate 'substrings' of a regular expression with the symbols '\(' and '\)' and then you can refer to these substrings using a '\' and a digit. This is very handy for finding duplicates of words. The command

grep '\(the\) \1' filename

would find all the occurrences of 'the the' in the file 'filename'. More whimsically, with the command

grep '^\(.*\)\1$' /usr/dict/words

we can find words that consist of a pattern repeated twice like 'beriberi', 'tartar', or 'coco', about twelve entries in /usr/dict/words all together.

"Now that's enough for today. Come back tomorrow morning with a regular expression that will print out all the five-letter palindromes in /usr/dict/words, and we'll continue."

Let me tell you, my head was swimming. I collected my things and wobbled out the door. It was nearly dark outside, so I walked a short distance from the hut and pitched my tent. After a meal and some hot tea, I still felt disoriented, so I curled up in my mummy bag and drifted off to an uneasy sleep and dreams about magic characters and expletives and mantras. In one startling dream, I saw the command

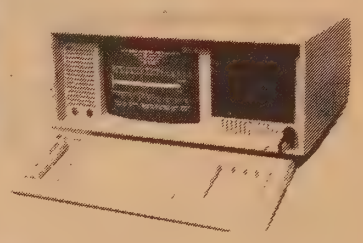
grep '^\([a-z]\)\([a-z]\).\2\1$' /usr/dict/words

in flaming letters. I woke up, jotted the vision down in my notebook, and tried to go back to sleep. In the morning, I booted my laptop computer and entered the command from my notes and out popped nine five-letter words starting with 'civic' and ending with 'tenet'! Incredible.

I ran back to the guru's hut and burst through the door to tell him the news. The 12 lamps were still there, and the threadbare rug, but Arpananda Bangdollar was nowhere to be seen.

It was a cold, foggy morning, and after waiting a while, I shut the door behind me and sat down on the little rug to rest. I must have fallen asleep, because the next thing I remember was a commotion at the door and some guy in a bright yellow down jacket and Birkenstocks saying, "Master, I have come to learn the secrets of UNIX."

Yours as ever,
Hapless



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UNIX

Turning Technology Into Solutions

BY SUZANNA MUSICK

Going Live: Accounting Software Installation Guidelines

I'm not going to tell you the precise and perfect way to install your accounting software.

Why? Because I can't.

The successful installation of a software program depends as much on the people involved as it does on the technology. All of the people, from upper management to the users. Everyone must be "on board."

There is a methodology to installing accounting software. (The words "installation" and "conversion" are used interchangeably in this article, although computer consultants generally see a difference between the two.) In earlier articles I discussed the steps leading to the decision to automate, and how to go about selecting the best software for your needs. In this article I'll set out the guidelines which should help you to get through the installation process without too many battle scars. These guidelines are based on the following assumptions:

- You have selected an accounting software program and are now ready to begin using it;
- The accounting software is an "off-the-shelf" program and not custom written;
- You are installing multiple modules (e.g., General Ledger, Accounts Receivable, Order Entry, Inventory, Accounts Payable, etc.).

Installation Guidelines

1. Prepare for the Installation. Don't try to tackle the job during your busiest season or some other unrealistic time (such as during a year-end close or annual audit). Even in the best of circumstances, an accounting installation is a great deal of work. While going to an automated system is almost always an improvement for the business, it normally requires more effort than anticipated. The conversion process requires you to continue with your regular work while learning to operate the new software program and entering all your accounting data. Be realistic when planning interim and final completion dates.

Good software provides you with meaningful reports based on the structure of your accounting codes. Carefully examine the software's capacity to generate specialized reports. Compare them with your current numeric or alpha system; you will probably have to make changes to take advantage of the program's best features. Review your chart of accounts, vendor and customer numbers, inventory and job cost coding, and any other tracking codes which will be entered into the software program.

To illustrate, an inventory number might be structured so that the number itself has meaning (what we call a "smart-part" number). HHLRSO might signify household furniture, living room and sofa. Some programs allow you to then produce reports on any or all sections of that number. You could print a report on sales of just sofas, living room furniture vs. dining room furniture, or on all household furniture if you wished.

2. Personnel Issues. You wouldn't think of asking your accountant to fix your car, so don't ask a non-accountant to do your bookkeeping. Many companies with automated accounting systems mistakenly believe that anyone can "do" the books.

I'm not saying that a clerk cannot enter invoices or record new vendors in the system. However, don't expect clerks to produce meaningful financial statements unless they receive assistance or training. The person responsible for the financial statements must know what a journal entry is, be able to tell a debit from a credit, and recognize the difference between assets, liabilities, and owner's equity.

Be sure that all those employees who will be operating the system are properly trained in the program's use. Your accounting staff is much more likely to embrace the new technology if you help them become comfortable with it. Many programs have tutorials and lessons, and your staff should use them.

3. Put Someone In Charge. Take a lesson from the construction industry. Construction jobs have a project manager who is responsible for ensuring that all tasks are completed accurately and on time. You need this kind of person in an accounting conversion as well.

The accounting project manager should be charged with responsibility for all facets of project completion. Work should be scheduled to keep the project moving along smoothly, but not at such a pace that staff members burn out. The project manager should also ensure that a filing system for management and "audit trail" reports is established, and verify that copies of your computer data (backups) are made and stored properly.

4. Take Time To Become Familiar With The Software. I've learned that asking clients to allow themselves time to "play" with their new software program is asking a lot. Nevertheless, experimenting with the software before putting it "on line" can be a very valuable learning experience.

Before you invest substantial time and money in the conversion of your current accounting system, test the new software program. Take a few transactions from each accounting area and "walk" them through the system from start to finish. Set up a customer account, generate invoices or statements, post them to the general ledger, and look at the financial statement.

You won't be able to avoid making mistakes. Take the opportunity to learn from them early on so that you don't replicate them throughout the system.

This process will help you to understand the inevitable differences that exist between your current system and the new one. Remember, you would not have purchased the computer system if it was not going to offer you advantages over your current operations. Take the time to figure out how to get the most out of your newest employee.

5. Take Small Steps. Don't try to do too much at one time. This is important. Prioritize and determine where to start, and how the project will progress. If possible, "integrate" (merge) one "module" (accounting function) at a time. Do one piece of the conversion and do it well. Get results that everyone can feel good about, then move on to the next step. For example, convert your Accounts Payable and start taking advantage of vendor discounts before tackling your General Ledger. When you get the General Ledger set up, begin producing financial statements. Finally, once you are confident that each installed program functions properly on its own, begin integration. For example, have Accounts Payable post directly to the General Ledger.

The biggest benefit to breaking the project down into separate components is that you can use the knowledge gained in the first phase for all subsequent parts of the conversion. In Accounts Payable, as you learn to enter vendors and invoices and to void checks, the mistakes you make (and learn from) will save you time in the other modules.

You won't be able to avoid making mistakes. Take the opportunity to learn from them early on so that you don't replicate them throughout the system. Once you have the process down (usually a month or two), integrate the modules together.

6. Prepare An Operator's Procedures Manual. Like most software instruction manuals, accounting

Copyright © 1989 by Suzanna Musick. All rights reserved. *Suzanna Musick is a Manager in the Computer Consulting Department of Hemming Morse Inc., CPAs. Her experience encompasses a wide range of industries such as distribution, retail, construction, real estate, financial, and professional services.*

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manuals leave a lot to be desired. Even if they are written in English (not computerese), they are written to fulfill the needs of many different types of business users.

More valuable than the software manuals is developing your own set of procedures documenting how you use the program. The manual should be written in such a way that if the bookkeeper is not available to operate the system, someone else can step in and rely upon the documentation for guidance. The procedures manual should cover the daily, weekly, and monthly tasks you perform and should include any logs, checklists, or other forms you use to manage the system.

7. Ensure Data Integrity. As discussed earlier, converting from one system to another is a lot of work, so make sure that the information entered in the new system is accurate. Run tape totals on batches of invoices being entered and check your total against the computer printout to ensure that they agree. If they don't, find out why. Resolve the discrepancies as they occur, rather than trying to dig back through a month's worth of data to find an error.

8. Running Parallel. For management to gain confidence in the new system, they must be assured that data are being entered correctly. Running parallel is the only way to do this.

Reconcile your computer-generated reports to your old ones. Check to be sure that customer accounts are accurate, that financial statements agree, and that the inventory valuation matches. If you have monitored and checked everything as it was being entered, this should be a relatively painless process. Once you have confidence in the new system, you can drop the old. We like to see two complete months of clean processing before we discontinue the old system.

9. Define, Organize, And File Reports. Forget the myth of the "paperless office." Computers generate more paper, not less. Part of your job will be to discern which reports must be kept and which are superfluous.

It is critically important to maintain a "through-the-computer" audit trail. An audit trail allows you and your CPA to determine where the figures on your financial statements came from. If you want to see which customer invoices make up the $50,000 you have in Accounts Receivable, you should be able to print a report showing the detail that totals $50,000.

Establish which financial statements and other management reports are to be filed and kept. Everyone involved should know which reports must be kept, and they should be filed regularly (daily). Regular filing saves you the grief of digging through reams of paper looking for that one report your boss or CPA is asking for *now*.

10. Internal Controls. Who has access to the system and who doesn't? Have you decided who can enter in invoices, and who can write checks (what CPAs call "separation of duties")? Whatever your parameters are for accounting data security and internal control, they must be defined and passwords entered into the system.

Further, the person entrusted with setting up and maintaining passwords should not be the only person who knows what those passwords are. The president of the company, the CPA, or banker should also have knowledge of the passwords maintained in your system. You do not want to find yourself locked out of your accounting system because of an unhappy employee or other unfortunate circumstance.

11. Backups. Making copies of your programs and accounting data is the least expensive form of insurance you can buy. A backup copy of your programs should be stored in a safe place, separate from the originals. Data should be backed up daily, and periodic copies should be taken off site. Exact backup policies should be determined and enforced.

Not maintaining frequent backups can cause you much suffering, and possibly even loss of business. What if your computer malfunctions, or worse, gets stolen? Replacing the program is easy. You buy a new copy and install it on your new computer. Your transaction data represent an altogether different problem. If you do not maintain regular backup copies, your only option may be to re-enter everything from square one. Make your backups regularly, label them accurately, and store them wisely.

I hope that this article is helpful to those of you who are getting ready to install an accounting system, or are in the process of installing one. While I have tried to stress the caveats of an installation, I don't want you to feel that it's more work than it's worth. The return you will get from your new system should far outweigh the effort you must expend to get there.

One thing I didn't discuss is the availability of help (i.e., a consultant) when going through this process, and my next article will deal with how to locate a consultant when you need assistance or guidance. ■

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BY MATTHEW LEEDS

Amiga Viruses

How To Practice Safe Computing With VirusX

There has been a lot of press in the last few months on computer viruses. Networks have been brought to a grinding halt, companies have lost valuable data, and untold numbers of end users have been inconvenienced (at the least) by a rash of hyperthyroid practical jokes. Perhaps that's too polite, as programmers who create viruses are practicing a form of anti-social behavior only slightly removed from car bombing or razor blades in apples.

In the Amiga community we have been fortunate that all of the viruses until now have been variants of a single type: "boot block" viruses. They inhabit the boot blocks of disks (the first two blocks on Amiga disks, used to mark a disk as bootable). Since only the first few bytes of space in these blocks are used by the operating systems, the remainder has been an excellent hiding place for viruses.

Boot block viruses are fairly well understood, and many programs have been created to deal with them effectively. Unfortunately, a new virus has been discovered that uses an entirely different vector of transmission and attack. This new virus, known as the IRQ virus, can attack any executable program, and is the first Amiga virus you can catch by downloading software from a BBS. It is also the first virus that can attack a hard disk.

Fortunately, there is a cure. Steve Tibbit, the author of numerous freely redistributable (copyrighted but no fee to use) programs, has created a new version of *VirusX*, the anti-virus program. This latest version (V 3.10) not only checks for the existence of every known strain of boot block virus, both in-memory or on-disk, but it checks for the IRQ virus in-memory as well. If any virus is found resident in memory, *VirusX* removes it and lets you know. If any boot block virus is found on a disk, the program informs you and lets you remove it.

Since the IRQ virus can infect any program, checking for it is a little more difficult. Dan James has come up with a program, *KV*, to check programs for infection by the IRQ virus.

The documentation from *VirusX* offers valuable information on dealing with viruses in general and the IRQ strain in particular:

"This virus attaches itself to executable programs. Its prime target is the C:DIR command, but it will also look at your startup sequence and attach itself to the first executable program found in the startup sequence.

"A sample chain of events:

- You download or otherwise acquire a new program. This program happens to be infected.
- You execute this program.
- The virus attaches itself to memory.
- Now, you're on DF0: and you run a program that uses the OldOpenLibrary() vector (hard to predict which ones do...), the virus will open your startup sequence and pick the first filename it sees in it, see if it's executable, and if so, will write itself into that file. If it's not executable, it will try and write to the DIR command on that disk.

"As you can see, the only files this virus will infect will be whatever comes first in your startup sequence, and the DIR command.

"This virus is mostly a harmless joke. It will not kill commercial programs (at least not any I've seen so far), it doesn't attack anything, doesn't do anything malicious. It's not nice to have around, but it's certainly better than a malicious virus!

"It changes the title bar of the Initial CLI window when you boot, and it will try to write to any disk inserted—thus bringing up the 'Volume whatever is write protected' requester whenever you insert a write protected disk. It will write itself to any disk you execute a file off of, possibly to the DIR command, possibly to the first thing in the startup sequence, depending on the startup sequence.

"This virus will not work under Kickstart 1.3—you will get Software Error requesters whenever you run an infected program. I'm not sure why, but this is probably good.

"You cannot identify a file that has this virus in it just by looking at it. The virus encrypts the text parts of itself, and encrypts it differently on each copy—so you can't learn to recognize it. You can tell your system is infected if you put in a write protected workbench disk (or any disk that has a startup sequence), and if the system brings up a 'Volume whatever is write protected' requester, then this virus is in RAM attempting to infect this disk.

"Running *VirusX* 3.1 will tell you that this virus is in RAM, and *VirusX* will remove it from RAM.

"The other thing this virus does is, when it first installs itself in your system upon reboot, it changes the title bar of the current window, (usually the initial CLI window, since it IS the first thing in your startup sequence), to say something like "AmigaDOS Presents: The IRQ Virus, V41.0." This is, of course, a dead giveaway.

"To get the virus out of RAM, run *VirusX* 3.1 and it will tell you if it found it and that it removed it if it did. *VirusX* will check disks the same way that the virus does—it will look at the startup sequence, determine if the first file found (or the DIR command) are infected, and give you the option of repairing them if they are infected. You can also get rid of this virus simply by deleting all infected programs and rebooting. This virus will not hang around after a reboot.

"*VirusX* 3.1 will look in the same places the virus does for possibly infected programs. If it finds one, it will pop up a window and show you where it found it, and ask if it's ok to remove it.

"Because this virus can hit a number of files, not all of which *VirusX* will find, also included is a small program by Dan James called *KV*, 'KillVirus.' This program will check a whole directory's worth of files for this specific virus.

"Keep *VirusX* 3.1 running when you test new programs. *VirusX* will alert you as soon as it sees this virus appear in memory—probably the last program you ran is infected if *VirusX* reports it found the virus.

"Another easy way to protect yourself from it: Change your startup sequence on any disk in any drive, so that the first character before the first executable filename is a TAB. The virus tries to Open() the whole line, parses out a few characters, but not the tab. Note that if you use a pathname as in DH0:C/BLAH, and you put a tab in front, you'll get a requester for [TAB]DH0:. Just use [TAB]C/BLAH or whatever."

Boot block viruses are fairly well understood, and many programs have been created to deal with them effectively. Unfortunately, a new virus has been discovered that uses an entirely different vector of transmission and attack.

Another Useful Product

If you decide to edit your startup-sequence to include a TAB character, I would like to recommend a new text editor from ASDG called *CygnusED Professional*. This is far and away the fastest text editor I have ever used. If you use a text editor on a regular basis, this is worth checking out. It has several features I've never seen before, including columnar block cutting, intelligent handling of overscan modes (scroll bars on the left side of the screen as option), and a file recovery utility that lets you recover edits in progress after a GURU. It runs on any Amiga with 512 K of RAM. Four stars. ■

Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

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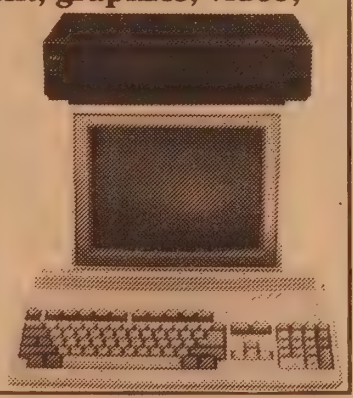

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BY DAVID HAWKINS

Atari Desktop Publishing

Big Improvements From Soft-Logik

Last year I wrote about the problems with *Publishing Partner Professional*, an ST desktop publishing program from Soft-Logik. I complained about the ads running a long time before the product was ready, and about how, when the product was finally available, the first release to paying customers was basically unusable.

Last week I received Soft-Logik's newest release. The product is now called *PageStream*, and it's much improved. Impressive, in fact. The price is listed at $199. Soft-Logik can be reached at 11131F S. Towne Square, St. Louis, MO 63123, (314)894-8608.

Upgrading

If you've been using *Publishing Partner*, then you'll be glad that *PageStream* includes a program to upgrade your fonts to the new *PageStream* form.

PageStream compares favorably with Mac desktop publishing programs. It's a lot cheaper, for one thing. Also, it allows you to take text and graphics and rotate, slant, or twist them.

The earlier release didn't have this feature. If you have the earlier release of *PageStream/Publishing Partner Professional*, the wisest thing to do is remove the initialization files before installing *PageStream*.

System Requirements

PageStream will run on an Atari 520 ST, with just a single drive, and with either monitor. However, you'd be continually running into the limitations of that system if you did much work with *PageStream*. If you're going to do much desktop publishing work, you need a hard disk. And I was using just about all the memory available on my 1040 ST, so I know I would have had to give something up to use a 520.

PageStream works best with the monochrome monitor. I tried using the color monitor for a few days, but there are some things that don't show up on the screen when you're using the color monitor. Also, the sharpness and crispness of the monochrome monitor make the document look better while you're working on it. .

Features

My copy of *PageStream* came with a sheet entitled "The Facts," which compares *PageStream* with *PageMaker* 3.0, *Ready,Set,Go* 4.0, and *Quark XPress* 2.0—all Mac programs, with *PageMaker* also available for IBM compatible computers.

PageStream compares favorably with these programs. It's a lot cheaper, for one thing. Also, it allows you to take text and graphics and rotate, slant, or twist them. You can also group items on the page together and then rotate them.

PageStream also has a Zoom command. Most desktop publishing programs have different ways to view a screen, usually 50% or 200% of the page's actual size. *PageStream* has the standard preset viewing options, but it allows you to zoom to other magnifications as well. For example, if you wanted to see the page at 15% or 1500% of actual size, you could.

Un-Features

The sheet also claimed that *PageStream* had a spelling dictionary. My copy didn't.

I also had trouble reading in some graphics, specifically those in the .IMG format. *PageStream* did read in *D.E.G.A.S.* files with no problem.

Aside from those two items, *PageStream* did have the features it claimed.

Learning PageStream: Something Of A Challenge

Actually learning to use *PageStream* can be a real pain. The manual is lousy—especially when you consider how long they've had to work on it. There were places in the "tutorials" where I could not follow the instructions. The manual also makes no mention of how differently things will appear on your screen if you use a color monitor. Specifically, "fill patterns" will not appear on your screen if you use a color monitor.

To learn *PageStream*, you need to read the manual through a few times and keep track of how a few of the different features work. The tutorials do not include reminders that you use certain parts of the program in certain ways. This can be very frustrating.

Actually learning to use PageStream can be a real pain. The manual is lousy—especially when you consider how long they've had to work on it.

Another problem with *PageStream* is that it crashes easily. When you start up *PageStream* a box appears in the center of the screen. If you click on the box or hit a key, the program bombs. What you have to do is go to the File menu and open a document or create a new document.

Save your work often. There's nothing so frustrating as doing some intricate work and then having the program crash on you.

PostScript

The one feature about *PageStream* that might make all this hassle worthwhile is its use of PostScript. It is possible to save your document as a PostScript file and then use a PostScript printer to produce it.

However, the manual is not clear on how to do this, so here are the steps. First, select Configure Printer from the Global menu. A screen will appear that says Printer Configuration. Click on Load and select the PostScript printer driver.

Then move down to the section on Send To: and click on Disk File. Click on OK and then move to the File menu and Print the document. It will ask for a filename and then produce a PostScript file on the disk.

This is one place where having a hard disk is helpful. PostScript files are very large. It takes approximately 30 K for each page.

If you save a document to a PostScript file and it won't print, you might have to do the following: use an editor that will save the file as an ASCII file and add the following line at the start of the PostScript file

%!PS

and then try printing the file. ■

Copyright © 1989 by David Hawkins. All rights reserved. David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He has one of the first Atari ST 1040s sold in San Francisco both monitors, an Okimate 20 color printer, and disks all over the room.

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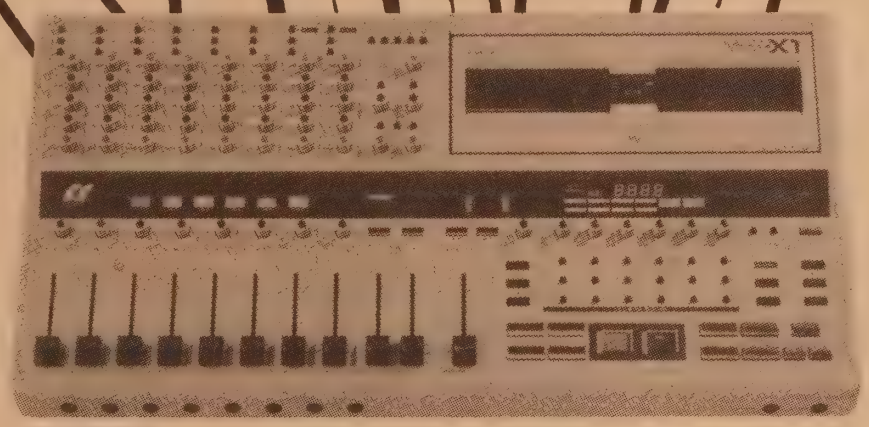

Sansui WS-X1

The WS-X1 is a console-type 6-channel multi-track recorder (MTR) with an 8-channel stereo mixer that is designed for the musicians who want mix and edit their own recordings. The unit also features a 2-channel deck for quick and easy mix-down of master tapes. This unit is the first of its kind from Sansui, the world-renowned Japanese audio and video manufacturer.

The WS-X1 is a versatile control center for home recordings, incorporating all the functions necessary for editing and production of taped recordings. It's an ideal studio machine for the one-man band approach or when playing against the background of other musicians and bands, and it can also be used for group practice or making demo tapes.

WS-X1 offers six record/play channels - two more than common 4-channel designs, yet not as complex as expensive 8-channel designs. Using the soon-to-be-available MR-6 6-channel slave MTR and SY-1 sync unit, WS-X1 users can expand to 10-channel-or-more capabilities if necessary.

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BY MIKE MARKOWITZ

The Joy Of Stick

Control Device Options For The Apple II

The choice of a computer hand control device is an intensely personal, almost intimate preference. Some folks love the mouse, others never get the hang of it, especially if the darned critter has more than one button. Non-typists often appreciate the natural, immediate feel of a light pen or touch screen. I happen to like the compactness and precision of the track-ball. But if you are going to play arcade-action games, you've got to have a joystick. This column will review several joystics for the Apple II family.

A joystick converts the mechanical motion of a lever into signals the computer interprets as horizontal and vertical ("x-axis" and "y-axis") displacements of the screen cursor, or aim point. A joystick also has at least two buttons, designated by binary convention, as button 0 and button 1. Button 0 is generally the trigger, in games that involve shootin'. The function of the other button is up to the game designer. The joystick plugs into the computer through a connector generally called the "game port."

There are two basic ways to make a joystick: analog and digital. The Apple II and IBM PC families use the cheaper analog technology. The Commodore and Atari families, which are altogether better game machines, use a more sensitive and costly digital mechanism.

Originally, the Apple II game port was designed for an even cruder control device, a pair of "paddles" for games like *Pong*. All Apple IIs (except the IIc and IIc+) have a 16-pin DIP socket on the motherboard, originally meant for these paddles. It provides three 1-bit inputs or switches, four analog inputs and four 1-bit outputs, along with +5V power and a common ground. Clever hardware designers have used this little port for controlling robots, monitoring the weather, and an amazing variety of other applications that have nothing to do with games.

The 16-pin game port required a rather fragile and expensive connector, and you had to open up the computer to connect or remove a device, so beginning with the Apple IIc, a 9-pin (DB-9) game port was provided on the back panel of the computer. This port is also compatible with the original Apple mouse.

Just to add to the confusion, the Apple IIGS also uses the Apple Desktop Bus (ADB), a four-pin (mini-DIN type) connector that can support a variety of external devices as well as the new Apple mouse. ADB joysticks designed for the Mac SE and Mac II also work on the IIGS. Some things in the Apple world can be plugged and unplugged recklessly, but ADB devices must *never, never* be connected when the computer is turned on. It can fry the little ADB processor chip. Apple recommends turning the machine off and waiting *five minutes*, to allow any stray voltages time to disperse into Entropy Land.

Mike Markowitz is a computer engineer for a large Southern California aerospace firm. He has been writing about Apple II computing since 1984. You can reach him on AppleLink (MOUSKOWITZ), or The Source (SIG 060). *Copyright 1989 © Mike Markowitz. All rights reserved*

Kraft Premium III

Kraft was the first company to make a joystick for the Apple II, and my four-year-old, 16-pin, made-in-USA model is still working perfectly. The latest version, called the Premium II, is made in Korea, and the feel and workmanship are not quite as good. The unit carries a five-year limited warranty. It includes a fire button at the top of the stick, as well as the standard 0 and 1 buttons. There are thumbwheels for calibration, and some tricky toggles on the bottom to disable the Center Return springs. A DB-9 connector at the end of a 6-foot cable plugs into a small adapter box, which in turn plugs into any ADB port.

Epyx 500XJ

The Epyx 500XJ represents a radical rethinking of joystick design. Its rounded body is designed to nestle in the left hand while the right hand operates the stick. The long, sculptured buttons (rather confusingly labeled "A" and "B") lie directly under the first and second fingers of the left hand. The whole arrangement is optimized for right-handed users and for games that do not require keyboard input in addition to the joystick. A toggle switches Center Return on or off (when Center Return is on, the stick is spring-loaded to return to a central position when you release it; with Center Return off, the stick stays where you leave it).

A Center Adjust button automatically calibrates the device. A tiny leaflet explains how to use it. The 6-foot cable has both DB-9 and gold-plated 16-pin connectors. A nice feature is a DB-9 to DB-15 adapter included in the package. This allows you to plug the same joystick into the standard IBM-PC compatible game port.

The good design is marred by indifferent workmanship—the stick itself felt loose, the press-on label was blistered in places, and the fit and finish were sloppy. Oddly enough, the unit was made in Great Britain. The two-year warranty is encouraging. The garish black and red color scheme clashes with beige or platinum Appleness. The entire unit could use some additional weight, since it tends to slide around on any flat surface.

CH Flight Stick

This is the Rolls-Royce of joysticks—big and beautiful. The rectangular base, molded in "platinum" colored plastic, measures 7" x 6". The stick itself is matte black, about 6" long, and resembles an aircraft-type control grip. The stick has independent pivots for the x and y axes, and a wonderful, solid, responsive feel. There are x and y thumbwheels for precise calibration. A high-quality milded DB-9 connector includes thumbscrews to secure positive contact.

Button 0 is a trigger for your trigger finger; Button 1, at the top of the stick, is operated by the thumb. Being perfectly symmetrical, the CH Flight Stick is equally comfortable for the superior left-handed 15% of humanity. The IBM PC version of Flight Stick includes a throttle control on the stick (this is supported by software such as Microsoft's *Flight Simulator* and Chuck Yaeger's *Advanced Flight Simulator* from Electronic Arts). Unfortunately, the Apple version lacks this feature—not enough signals available through the connector.

The Flight Stick can plug directly into the DB-9 game port, but CH Products also offers a remarkable ADB adapter called the Mirage, a box about 3" x 4" in size. This allows the joystick to emulate a mouse. You plug the Flight Stick into the Mirage, and then plug the Mirage into any ADB port. Four DIP switches control the movement rate and display area, according to some rather complex rules that are carefully explained in the documentation. To use the Mirage on the IIGS you cannot have the "Fast Mouse" option set in the Control Panel. Since most IIGS and Mac owners already have a mouse, this emulation capability is useful mainly to those with limited space. And if you win the Lottery and trade up to a Mac II, you can still keep the same familiar joystick.

Evaluation

If games are your life, the choice of a joystick is desperately important. Casual alien-zappers can get by with the cheapest generic Taiwanese clone-stick (about $15) at the Swap Meet, but if you aspire to be the Red Baron, the Ice Man, or Han Solo, consider the CH Flight Stick. There are more elaborate and costly aircraft control-yoke devices available for true flight simulation junkies, but for size, quality, price, and compatibility, it's unbeatable. ■

Resources:

Kraft Premium III
List Price: $44.95
Kraft Systems, Inc.
450 W. California Avenue
Vista, CA 92083
(619)724-7146

Epyx 500XJ
List Price: $39.95
600 Galveston Drive
Redwood City, CA 94063
(415)366-0606

CH Flight Stick
List Price: $74.95

Mirage ADB
List Price: $54.95
CH Products
1225 Stone Drive
San Marcos, CA 92069
(619)744-8546

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NASTY GIRL (2906) Can't print what's on this one.
X-RATED COLOR SHOW (2907) Lovely ladies in great show. CGA
X-RATED PRINTSHOP (2909) X-Rated graphics for Printshop.

JETSET FLIGHT SIMULATOR (102) Fly your jet in zero visability.
3-D CHESS (GAME9) Best around! Play in 2-D or 3-D mode. Play back moves and save games. Great!

MONOPOLY (118) Great graphics.
DND (119) Similar to Dungeons and Dragons.
GLOBAL THERMAL NUCLEAR WAR (105) A game before its time.
EGA RISK (GM11) World domination in terrific color. Also EGA Asteroids.
SLEUTH (117) Murder mystery similar to the board game "CLUE."
CARD GAMES (109) Includes Canasta, Hearts, Poker and Bridge.
18 HOLE MINIATURE GOLF (176) Time honored game.
LAS VEGAS (175) Includes Craps, Roulette, Poker, etc. CGA required. Basic on some.
WHEEL OF MISFORTUNE (181) Guess the word, spin the wheel and watch out!
DIGITAL LEAGUE BASEBALL (GM40) Pick your team and players. Good graphics.
CRIBBAGE (173) Also includes Firefight, T-Road, Slot, Nuke, etc. Requires Basic.
BRAIN TEASERS Vol 1.0 (281) Questions in over 25 categories.
SOLITARE (GM41) Four different games. CGA required.
TRIVIA GAME (130-131) (Two disks) Comprehensive trivia game.
BRIDGE PAL (171) Contract or duplicate bridge. Includes tutorial. Very good.
CENTIPEE (113) Just like the arcade game Centipede.
FLIGHTMARE (112) Futuristic fighter pilot game.
BASIC GAMES (107) Includes Pacman, Lunar Lander, StarTrek, Breakout and others. Requires Basic.
STRIKER (110) Fly helicopter through enemy.

MISC. APPLICATION

BIORHYTHM (1990) Calculate and print your own monthly chart.
DR. DATA LABEL (2327) Professional mailing list program. Print on postcards, envelopes, and any size label.
FAMILY HISTORY (2203-2204) (2 disk set) Creates files and genealogical reports.
STRESS & SHRINK (2006) Includes a stress test and a personality test.
ASTROLOGY 9.5 (1916) Calculate your own chart and print out.
LOTTO MASTER (1981) Play the lotteries with a scientific approach.
MEMBERSHIP SYSTEM (1984) Good for clubs, churches, etc.
HORSES (1999) Handicap system for thoroughbred racing.
HEALTH RISK (2010) Diagnose your ailments.

WORD PROCESSING

PC-WRITE V2.71 (401-402) (2 disks) Full featured word processor like the commercial versions.
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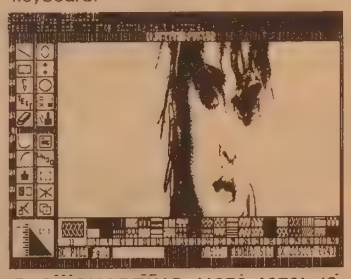
PC-TYPE+ (421-423) (3 disks) Jim Button's excellent W.P. Full screen editing, mail-merge, 100,000 word spelling checker, on-screen help, etc.
LETTER WRITER (405) Easy way to write letters. Popular.

HOUSEHOLD

MEALMATE (2014) Plan your meals with this database of nutritional information.
FASTBUCKS (799) Menu-driven home finance system. Easy to utilize.
HOME INVENTORY (1966) Household inventory system. Create your own categories. Includes estate and will planning.
VIDEO TAPE LIBRARY (1998) Catalog your video tape library. Menu-driven.
RECIPES V1.0 (2011) Over 125 recipes. Adjust serving sizes from 1-99.
LITTLE BLACK BOOK (2606) Creates pocket sized address book. Prints mini-alphabetized pages.
VEHICLE MANAGEMENT SYSTEM (2013) Predicts auto repairs, tracks MPG, etc.

GRAPHICS

FINGERPAINT V2.0 (1050) Paint program. Includes 6 fonts & 81 sizes. Creates graphics with mouse or keyboard.



FLOWCHARTING (1078-1079) (2 disks) Make your own flow charts. Customize own symbols, connect lines, etc.
KEYDRAW CAD SYSTEM (1001, 1002, 1065) (3 disks) Powerful CAD drawing program. Uses keyboard or mouse. Requires CGA.
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CITY DESK (2513) Simple and easy to use desktop publisher.
EGA TROPICAL FISH (1087) Turn monitor into a fish tank. CGA also.

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DOT MATRIX FONTS (3061-3062) (2 disks) Print out text in different fonts. Programs for IBM Proprinter, the Epson 800/1000 series, Star NX10 and NEC printers.
LASERJET FONTS/II (2721-2722) (2 disk set) Downloadable fonts for the Laserjet Plus II.
LQ V2.1 (2724) Produces high quality text on dot matrix printers.
LINCOMATIC BANNER (2714) Make banners with different fonts & sizes.

DESKTOP ACCESSORIES

HOMEBASE V2.0 (2608, 2612, 2613) (3 disks) Outshines Sidekick. PC-Magazine Editor's Choice. Many features.
PRO-MENU (3033) Run DOS and other programs from menus. Automatic custom menu maker. Make it easy on yourself.
INSTACAL (2610) Print wall-size calendar for any month or year between 1600-2200 A.D.

DATABASE

FILE EXPRESS (803-804) (2 disks) Menu-driven, easy to use and powerful. Rated excellent by PC Magazine.
PC-FILE+ V2.0 (801, 805, 837) (3 disks) Excellent. Full-featured with help screens. by Jim Button.

SPREADSHEETS

PC-CALC+ V1.0 (512-514) (3 disks) The Complete Spreadsheet program. By Jim Button.
EZ-SPREADSHEET (509) Simple and easy to use. Great for novice.
QUBECALC (508) Unique and powerful 3-D spreadsheet.
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LOTUS TUTORIAL (630) Excellent. Beginning and advanced.

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EZ-FORMS (1908) Menu-driven forms generator.
EZ-FORMS EXEC V2.0 (2015) Contains additional features to 1908.
EASY PROJECT V1.2 (BS27) Complete project management system.
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Q-MODEM V3.1 (1101, 1102, 1143) (3 disks) Full featured modem program. Redialing.
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COPY PROTECTION I (1219) Instructions for unprotecting Brownbag, dBaseIII, PCdraw, Printshop and many more.
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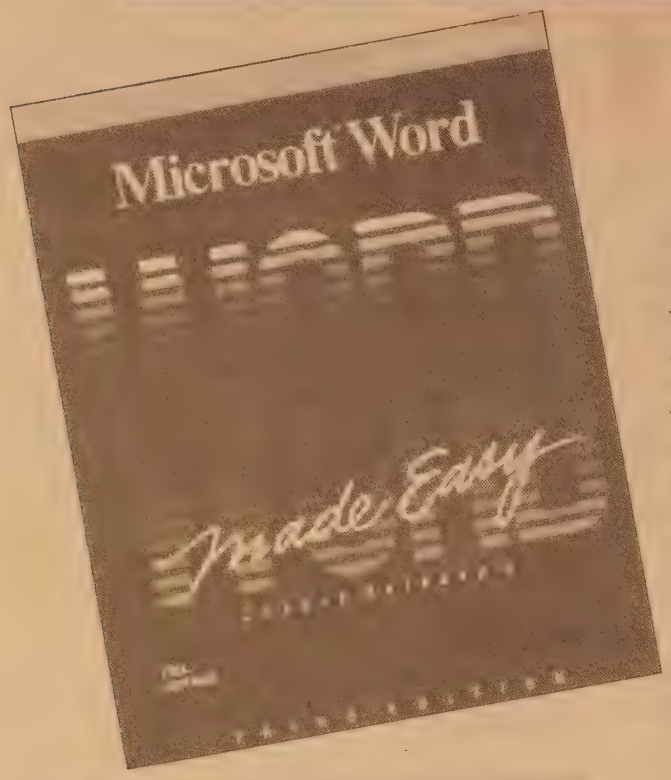
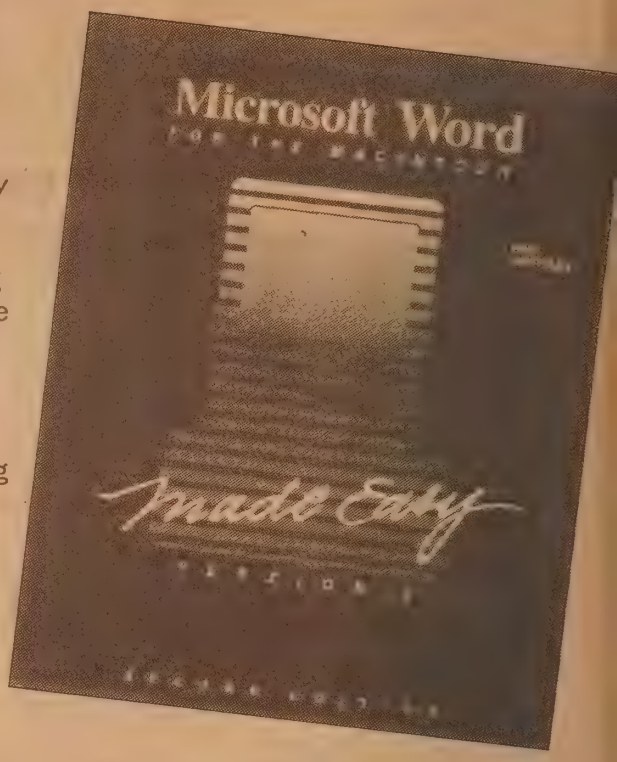
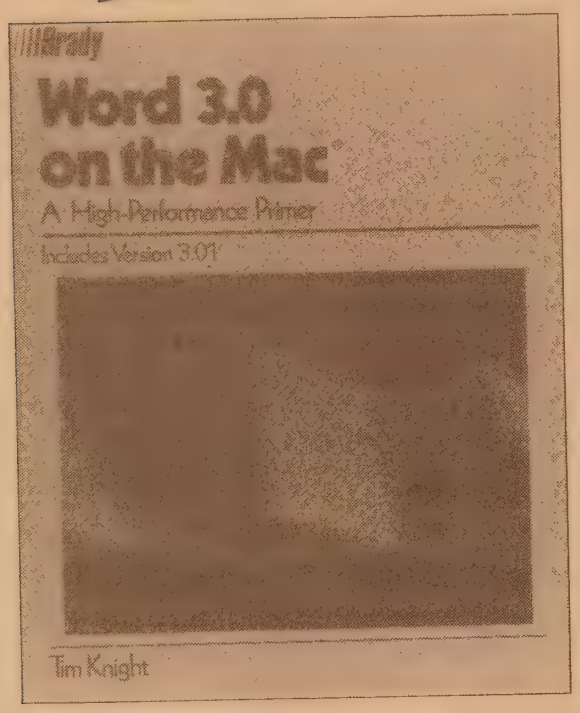


New Editions Of Word Made Easy Aid Beginning Users

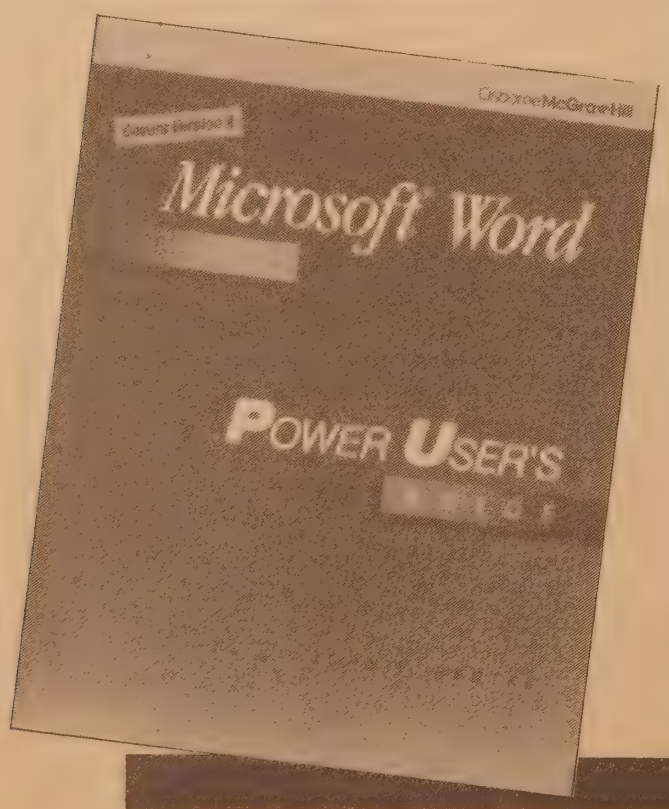
Two new books, *Microsoft Word Made Easy* and *Microsoft Word For The Macintosh Made Easy*, orient the new *Word* user to this popular and powerful word processing application. Written by Paul Hoffman, these books cover the latest releases of the PC and Mac versions. Learn about *Word*'s outlining features, indexing, sorting, creating a table of contents, how to exchange Mac and PC *Word* files, and using the program for desktop publishing applications. ($18.95/16.95.) Osborne McGraw-Hill, 2600 Tenth St., Berkeley, CA 94710.





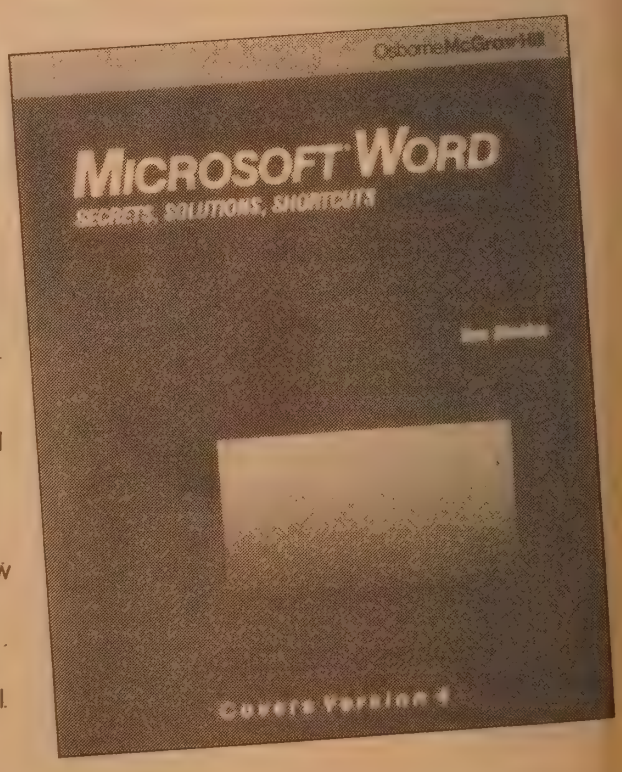
Mac Users Can Be As Good As Their Word With New Text

Word 3.0 on the Mac: A High-Performance Primer is a new text by Tim Knight that will introduce the novice to *Word* as well as show the more advanced user a new trick or two. Learn how to link documents, perform a full repagination and send PostScript commands directly to a printer. Other advanced functions like creating an index, laying out pages for desktop publishing and creating your own formulas for *Word*'s Calculation function are included. A Brady Book, distributed by Prentice Hall. ISBN 0-13-964255-2.



Two Books Offer Advanced Word Users Secrets And Shortcuts

Experienced *Word* users who would like to explore the full potential of *Word* for the PC, will be interested in two new offerings from Osborne McGraw-Hill, *Microsoft Word Power User's Guide* by John V. Hedtke, and *Microsoft Word: Secrets, Solutions, Shortcuts* by Tom Sheldon. *Power User's Guide* focuses exclusively on the latest release, 4.0. Learn how to use macros, how to add line drawings and graphics, design forms and import database and spreadsheet data. With *Secrets, Solutions, Shortcuts*, the user of any *Word* edition will find helpful hints on page setup, working with multiple windows, running DOS, remappable function keys, redlining and paragraph borders. ($22.95/21.95.) Osborne McGraw-Hill, 2600 Tenth St., Berkeley, CA 94710.



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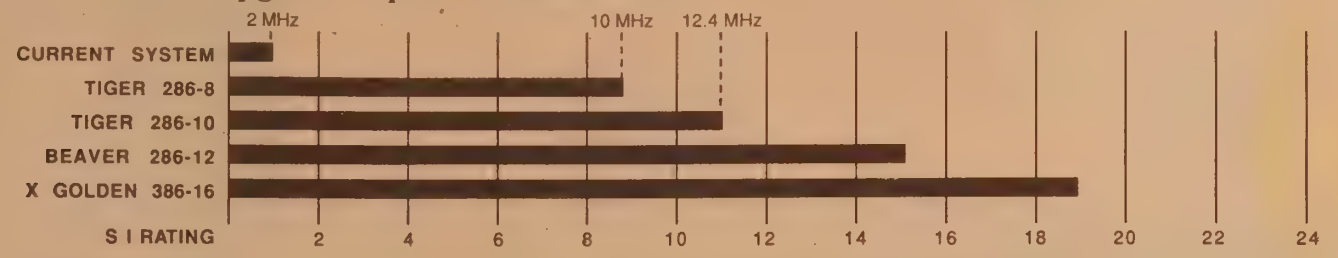

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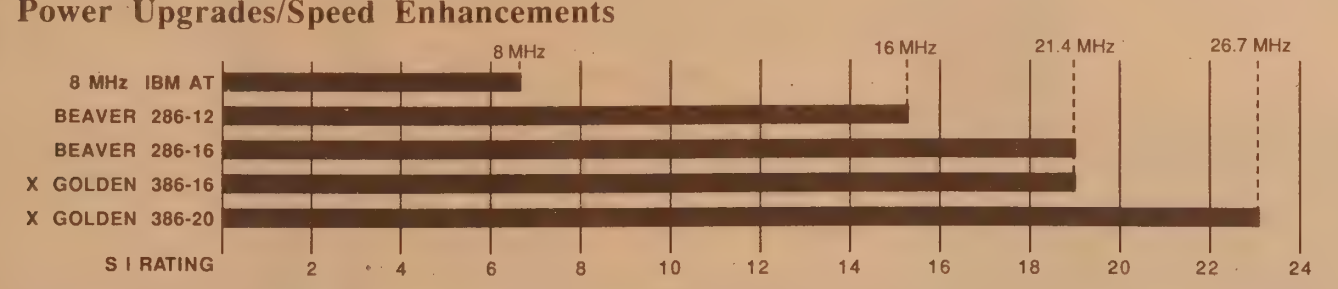

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CPU	80286-8	80286-8/10	80286-10/12	80286-16	80386-16	80386-20	80386-20/25	80386-16	80386-20
CO-PROCESSOR	80287-6/8	80287-8/10	80287-10	80287-10	80287-10 OR 80387	80287 OR 80387	80287 OR 80387	80387	80387
CACHE RAM	N	N	N	N	N	N	N	64K	64K
DRAM TYPE	64/256K	64/256K	64/256K	64/256K	SIM/DIP 256/1M	SIM/DIP 256/1M	SIM/DIP 256/1M	DIP 256/1M	DIP 256/1M
MEMORY SPEED	150ns	120ns	120ns	70ns	120ns	100ns	100ns	120ns	100ns
MEMORY CONFIGURATION	256/512 640/1M	256/512 640/1M	512 640/1M	512 640/1M	1/2/4 8 MEG	1/2/4 8 MEG	1/2/4 8 MEG	1/2/6 10 MEG	1/2/6 10 MEG
8 BIT SLOTS	8	8	2	2	1	1	1	1	1
16 BIT AT SLOTS	—	—	6	6	5	5	5	4	4
32 BIT MEM SLOTS	—	—		—	2	2	2	1	1
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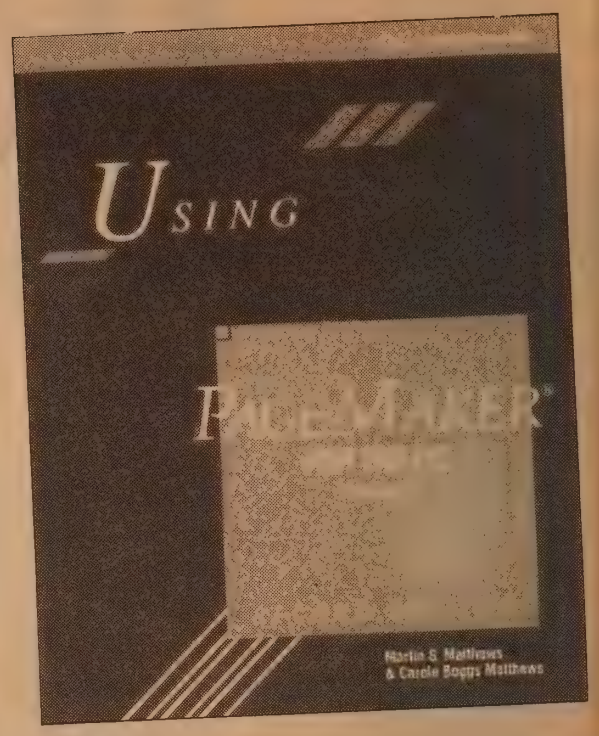
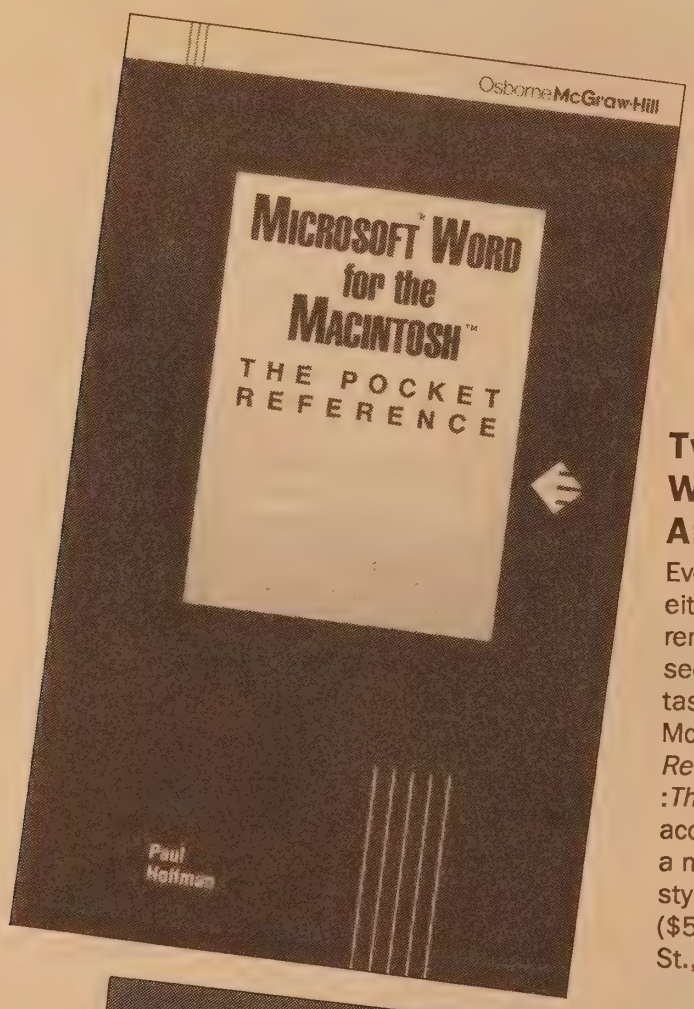
BOOK BUYERS GUIDE

Second Edition Of PageMaker Book Helps PC Users Master DTP

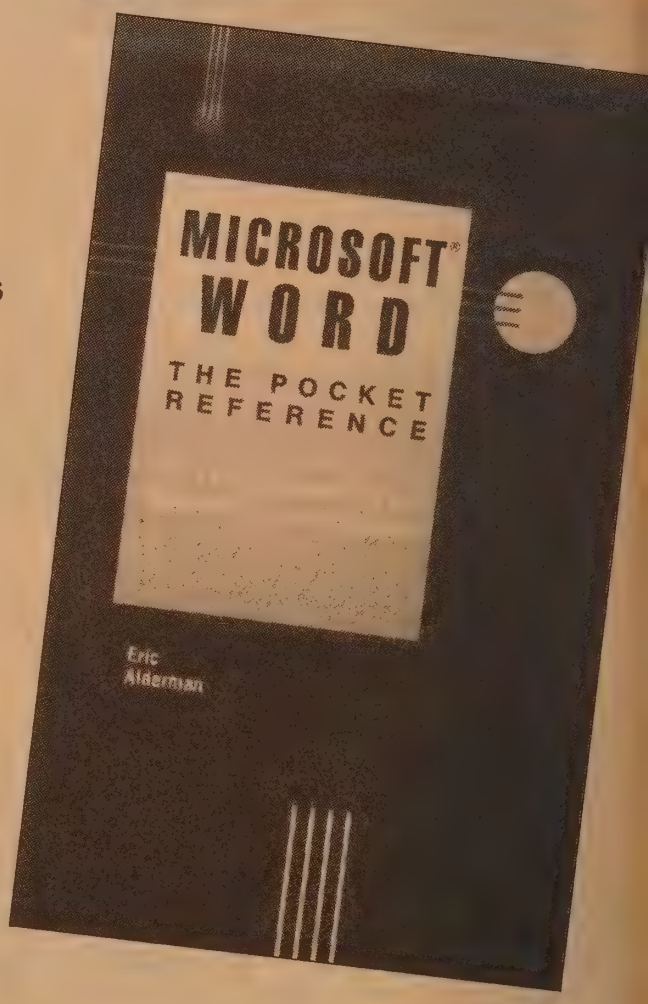
PageMaker For The PC Version 3 helps the novice and advanced desktop publisher master all the features of *PageMaker*. The text covers the latest enhancements of the application and instructs the user on how to use *PageMaker* with a variety of graphics and word processing programs. It also includes information on using the DTP program with scanned art and clip art. *PageMaker For The PC* takes the learner through step-by-step lessons on designing different types of printed materials including brochures, newsletters, forms and financial reports. ($22.95.) Osborne McGraw-Hill, 2600 Tenth St., Berkeley, CA 94710.

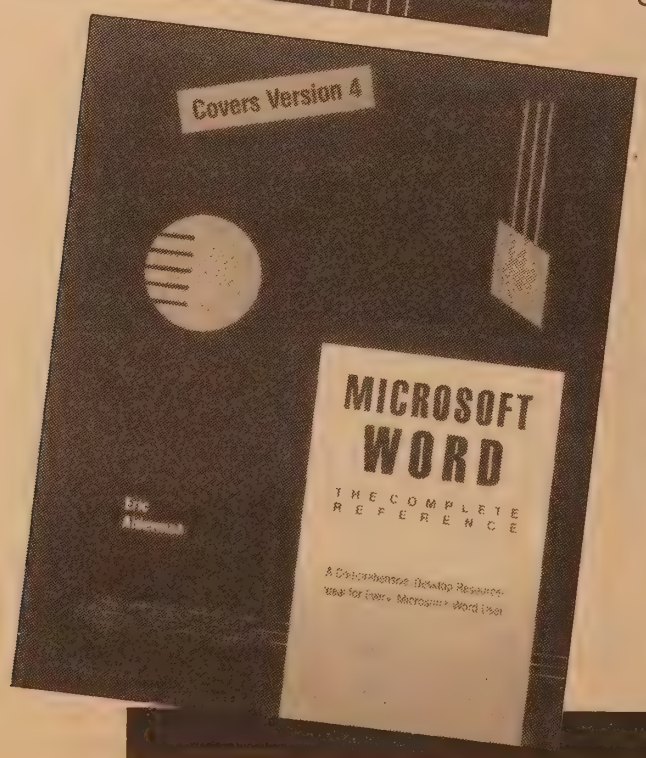




Two Pocket References For Word Summarize Commands And Procedures

Even the experienced user of *Word* for either the Mac or PC needs help remembering little used command sequences or how to perform certain tasks. Two pocket guides from Osborne McGraw-Hill, *Microsoft Word: The Pocket Reference,* and *Microsoft Word for the Mac :The Pocket Reference*, provide brief, accessible descriptions of how to: perform a mail merge, alter menus, set defaults and styles, format paragraphs and more. ($5.95.) Osborne McGraw-Hill, 2600 Tenth St., Berkeley, CA 94710.





Reference Book Contains Information On Latest Word Versions

A new reference text from Osborne McGraw-Hill contains complete, up-to-date information on the latest versions of *Word* for the Mac. *Microsoft Word: The Complete Reference*, leaves no stone unturned with the word processing program. Written to give the power *Word* user every bit of information that he or she could need, this text can be considered the final word on *Word*. ($24.95.) Osborne McGraw-Hill, 2600 Tenth St., Berkeley, CA 94710.

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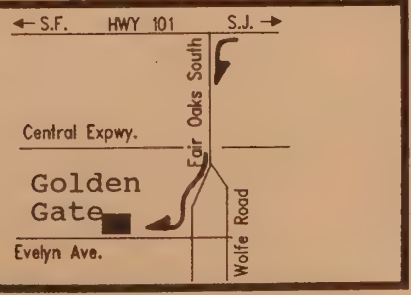

USER GROUP NETWORK

BY MARY EISENHART

Emerging from the crowds and chaos of the Macworld Expo, we find ourselves going through this month's mailbag for more interesting news from user groups. And news interesting to user groups, their members, etc.

The miracle of fax brings us a message from **Computers & You** in San Francisco. Computers & You, a nonprofit learning center, is part of the community outreach program at Glide Memorial Church, specifically intended to provide new skills and opportunities to the disadvantaged people of the inner city. According to **Rev. Cecil Williams**, Glide's minister, "Personal computer skills will give disadvantaged people the power to break the misery cycle that grips them. Computers & You will enable poor people to get out of the past and into the present and future."

Located at 330 Ellis in San Francisco, the learning center has enjoyed considerable support from industry leaders from the beginning—its advisory board includes such luminaries as publishers **David Bunnell** and **Pat McGovern**, **Heidi Roizen** of T/Maker and **John Warnock** of Adobe. Despite generous donations from the industry, **Timothy Jamerson**, the center's director, says demand for training (at $5 per person, per semester) far outstrips availability of equipment and volunteers: "We currently have over 200 people on our waiting list, but we're hoping that additional donations will enable us to accommodate their desire to learn."

One thing the center needs is more IBM PS/2 machines or clones thereof. Jamerson says: "On our Apple machines, we currently have a ratio of three people per machine. For IBM students, on the other hand, the ration is more like ten to one."

Students at Computers & You range from preschoolers to adults, and they'd be very appreciative of any help you could provide. If you'd like more information, call Computers & You at (415)922-7593.

Veteran *MicroTimes* readers will remember a Bay Area organization called **CompuMentor,** which has attracted much favorable notice with its campaign to match computer-proficient volunteers with nonprofit organizations in need of computer help. Volunteers range from beginners to wizards of various persuasions, and are usually able to find a needy organization whose goals they support, to great mutual advantage.

As a result of a fair amount of media attention, CompuMentor has received calls from prospective volunteers and help-seekers all over the country. Rather than try to administer all this from San Francisco, CM prefers to keep these efforts as local and decentralized as possible. So if you're interested in participating locally in this type of activity, or if you're a nonprofit organization in need of computer support—or if you're looking for a worthy and tax-deductible home for some of that obsolete equipment you're getting rid of—give CompuMentor a call at (415)282-4648 and ask for **Randy Dunagan.**

Upcoming events of interest: The **Third Computer Game Developers' Conference** is scheduled for Sunday and Monday, May 7-8, at the Sunnyvale Hilton near San Jose. Planned sessions include subjects like "The Process of Building Games," "Artificial Personalities," "Network Games," "Theft Protection," and one of *our* favorites: "Making Reality Fun." Sponsors and presiding wizards **Stephanie Barrett**, **Tim Brengle**, **Chris Crawford**, **Stephen Friedman**, **Jeff Johannigman**, **Brenda Laurel,** and **Dave Menconi** advise early registration because last year's event sold out fast. Registration fee is $125 for postmarks up to March 1, $150 for postmarks March 2-April 1, and $175 for stragglers who don't get their materials in till May 1. (After May 1, you have to take your chances on the availability of tickets at the door.) So if you design, program, or produce computer games, this might be just what you've been waiting for. If so, send your name, address, and check to: Computer Game Developers' Conference, P.O. Box 50282, Palo Alto, CA 94303.

And while we're on the subject of programmers and developers, **Michael Odawa** of the **Software Entrepreneurs' Forum** (yes, the same Michael Odawa who's declared war on computer viruses in another article in this issue) has announced SEF's upcoming seminar on "Object-Oriented Programming with MacApp," which will be useful to many of those trying to find the most effective approach to writing Mac software. What's being covered? Says Mike: "You'll learn the basic concepts behind object-oriented programming and design. You will also get a solid overview of the architecture of the MacApp toolkit. You do not need to be a Macintosh programmer in order to attend."

The seminar takes place on February 25th from 9 am until 5 pm at the Dunfey Hotel in San Mateo; lunch is included and the hotel offers a special rate to conference participants. Luncheon speaker is **Scott Knaster** of Apple, author of *How To Write Macintosh Software* and *Macintosh Programming Secrets.*

Cost of the seminar is $95 for SEF members and $175 for non-members; registration information is available from SEF at (415)854-7219.

If you're one of the legions of people who work in law offices and use *WordPerfect*, you might like to know about a new information resource, **The Newsletter: Legal Word Processing With WordPerfect.** Published quarterly, *The Newsletter* addresses issues of concern to the beleaguered denizens of law offices, discussing such problems as line numbering, getting around the occasional bug in the not-quite-perfect program, interfacing with H-P printers, and dealing with the threat of viruses. **Kathleen Creighton**, who owns Professional Input Service, a San Francisco-based word processing service bureau, edits and publishes *The Newsletter* along with consultant **Robert Lauriston.**

If you'd like to subscribe to *The Newsletter*, send $36 (for a one-year subscription) to Professional Input Services, Inc., 740A 14th Street, Box 420, San Francisco, CA 94114. Or if you'd just like more info, call (415)864-7748.

The Berkeley chapter of the **Society for Technical Communications** is sponsoring a presentation by technical writing consultant **Jonathan Price** on the subject of technical writing in Japan. Among the subjects he'll discuss are the emergence of technical writing as a profession in Japan, the cultural differences between Japanese and Western audiences and the problems they create, and working conditions.

The presentation takes place on Wednesday, March 8, 1989, at Cody's Books, 2454 Telegraph in Berkeley. Donation is $2 for STC members, $3 for non-members. If you'd like more information, give **Rae Montor** a call at (415)531-2315.

From the net we hear from **David B. Anderson** at Silicon Graphics, who wants to announce the existence of **SVNet**, a UNIX user group which holds monthly meetings on third Tuesdays at the Apple Auditorium, 10500 De Anza in Cupertino. Meetings are free and open to the public, and the group makes tapes of public domain software available for sale to its members. The meetings also feature presentations by assorted UNIX luminaries: the January meeting featured a panel discussion on system security, with speakers from UC Berkeley, Amdahl, Pyramid, and NASA/Ames. February's meeting featured **Marshall Kirk McKusick** on new features in BSD 4.4. If you'd like to know more about SVNet, the person to call is **Ralph Barker** at (408)248-8649.

Paul H. Tibbals of San Ramon files a report from the **Amiga + Commodore Computer EnthusiastS Society (ACCESS),** of which he is the new secretary. Paul says the group has had some changes, notably having to change its meeting location four times in the last year, but has finally found a new home in the terminal building of the Livermore Municipal Airport, off of Airport Avenue. Meetings are on second Tuesdays, and you can call Paul at (415)829-6053 for more details.

Finally, here's some good news for Californians. Especially those with PC Pursuit if they live outside the 415 area code. The **California Public Utilities Commission** now has its own BBS to provide information on Commission activities and solicit opinions, information, and questions from the public. This information comes to us from PUC Public Affairs Chief **Bruce H. Kennedy**, who adds that the board operates 24 hours a day at (415)557-4131 at 300/1200 baud, 8-N-1. **Fred Curry** is the sysop of the board, and if you have questions, you're invited to give him a call at (415)557-3705.

Keep those cards and letters coming in. Let us know what's going on with your group and we'll tell the world. Or a little of it, anyhow. The US Mail should be directed to User Group Network, 5951 Canning Street, Oakland, CA 94609. The email, on the other hand, should be directed to **microx** on The WELL (415)332-6106 or to **{pacbell, hplabs, ucbvax, apple}!well!microx** if you're off in the further regions of the Usenet. See you next month.

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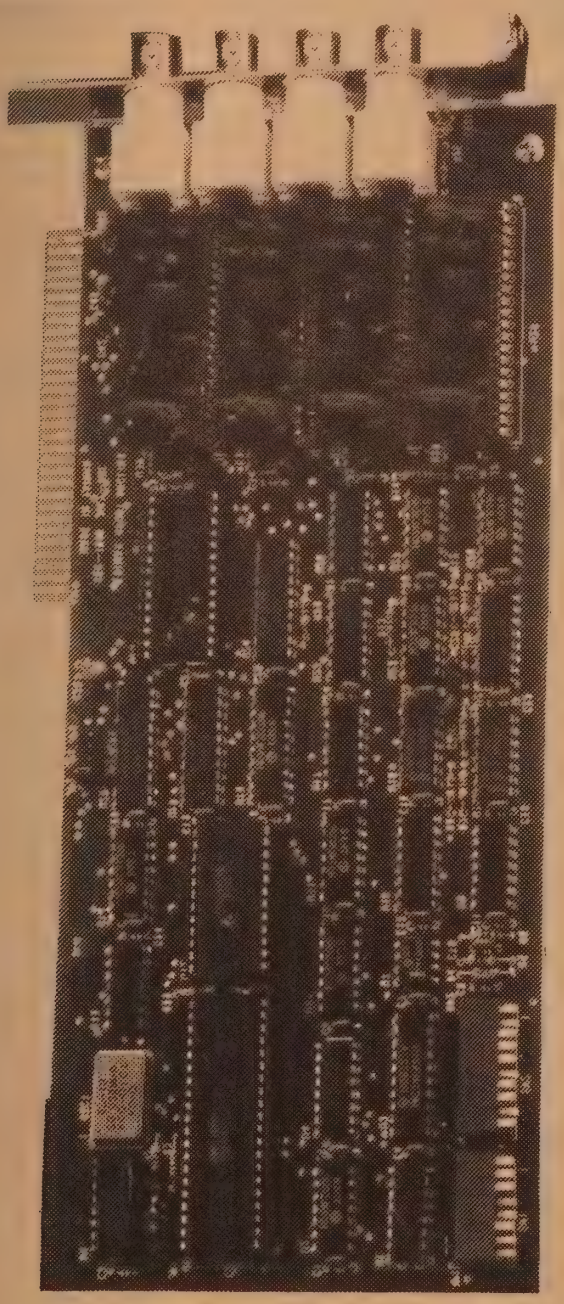

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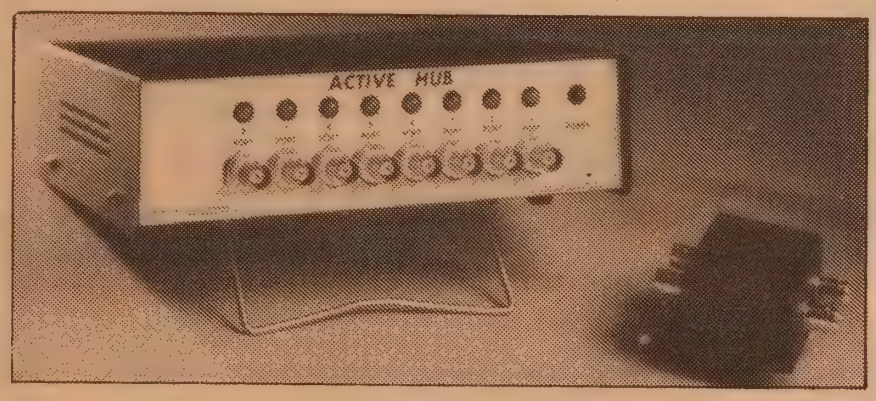

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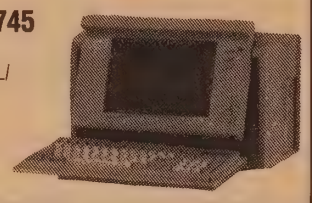

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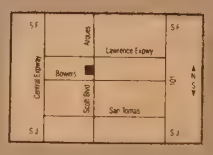

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Oasis Software Library.(209), 823-2803, 300/1200/2400, 8-N-1, 24 hrs. Shareware and PD for IBMs and compatibles. No fee but registration required. Sysop: Tim Campi.

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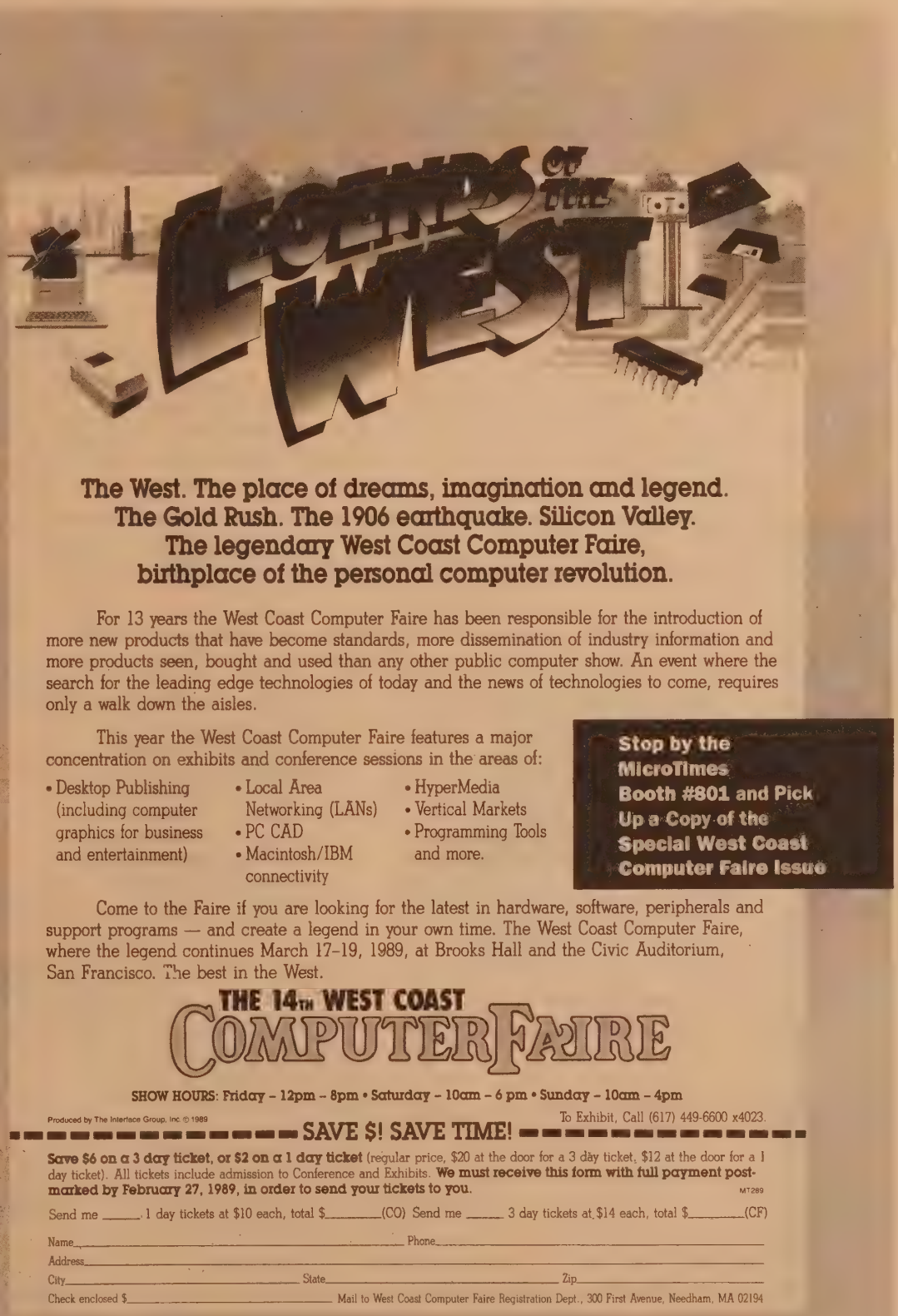

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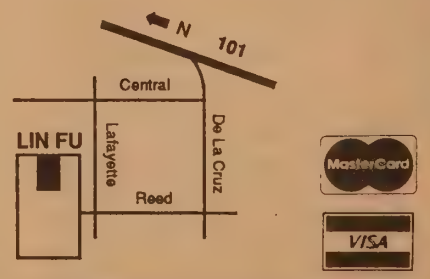

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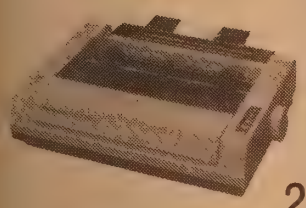

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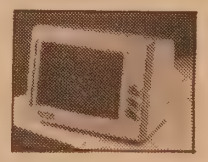

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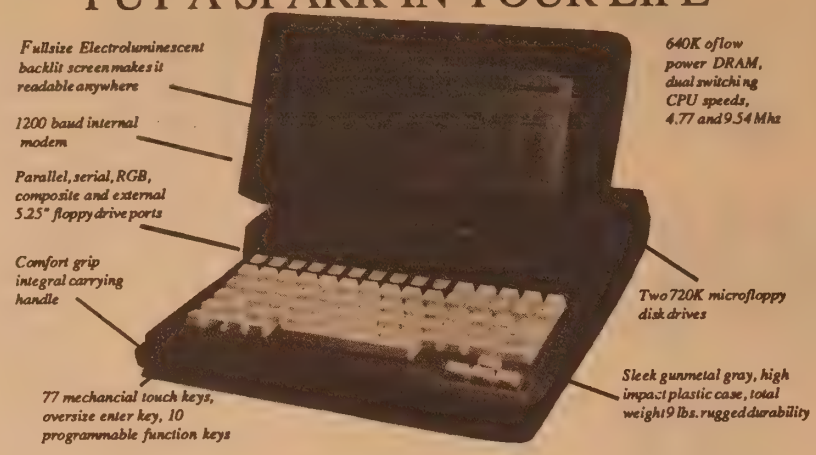
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California ConneXion Partyline. (415) 927-2739. 8-N-1, 24 hrs., 300/1200/2400. 9 lines, 150 megs, chat, group-chat, email, 25+ pubs, matchmaking, adults only. Registration required.

Catholic Information Network - Santa Clara County. (415) 967-3420. 300/1200 8-N-1 6 PM-8 AM. PC pursuitable through (408) through Santa Clara BBS. No access charge. People of all faiths welcome.

Catholic Information Network - SF. (415) 387-3251. 300/1200 8-N-1 24 hrs. PC pursuitable. Active conferences. Simple registration, no access charge. People of all faiths welcome.

Charisma. (415) 349-6576. 1200/2400 8-N-1 24 hrs. Paradox, dbase, IBM utics. 3500 files. Sysop: Tom Swegles

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Draco Redux. (415) 342-0511. 8-N-1, 24 hrs., 300/1200. All systems welcome, but libraries are Apple and Macintosh only. Free. Registration required for full access. Sysop: Leonard Reed.

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Easy Access BBS. (415) 829-6027. 300/1200/2400 8-N-1 Sysop: Tony Waddell.

Emerald Lake Fog #48. (415) 361-1847. 300/1200/2400/9600. General info. DOS and CP/M. 232 MB. Wildcat BBS. Sysops:Dick Worth and Doug Spence

Epson Users of SF Bay Area. (415) 467-2780.

Epyx On-Line Service Center. (415) 364-0281, 8-N-1, 300/1200. Information on Epyx' products and services. Technical support, warranty and update information, on-line catalog, game hints, product release date announcements, new product info, beta test info, market research studies, and upcoming contests! Sysop: Epyx.

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SCUBANET (415) 243-9461, 8-N-1, 24 hrs. A BBS dedicated to scuba and free diving. Sysop: Charles Eng.

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SF Robotics Society. (415) 752-7228. 300 24 hrs. Extensive robotics & hardware bibliography. Calendar of events.

SFPCjr Users Group (415) 997-4874, 8-N-1, 24 hrs. Sysop: Larry Buoncristiani 237-2043.

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SIGSIG. (415) 968-7369. 300/1200/2400 24 hrs. MS-DOS & CP/M files, 108 MB online, messaging and more. Featuring Auntie BBS software. No fees, immed. access. Sysop: Jim Switz.

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Stu's Place. (415) 782-4402. Official 16 bit BBS of San Leandro Computer Club. Free messages and downloads. Sysop: DeWayne Stuart.

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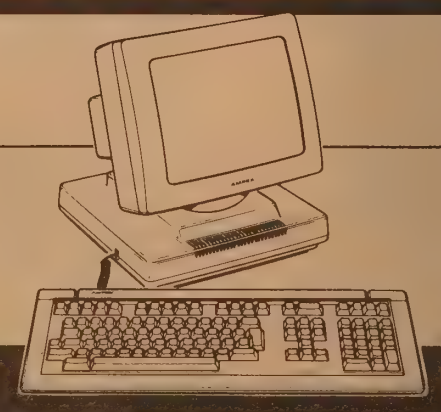

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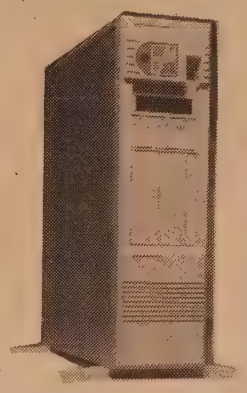

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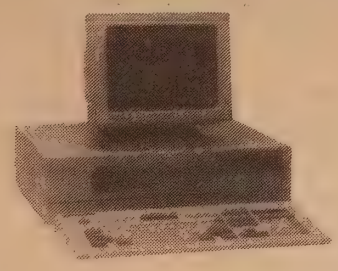

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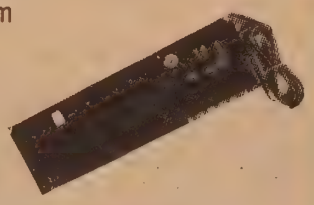

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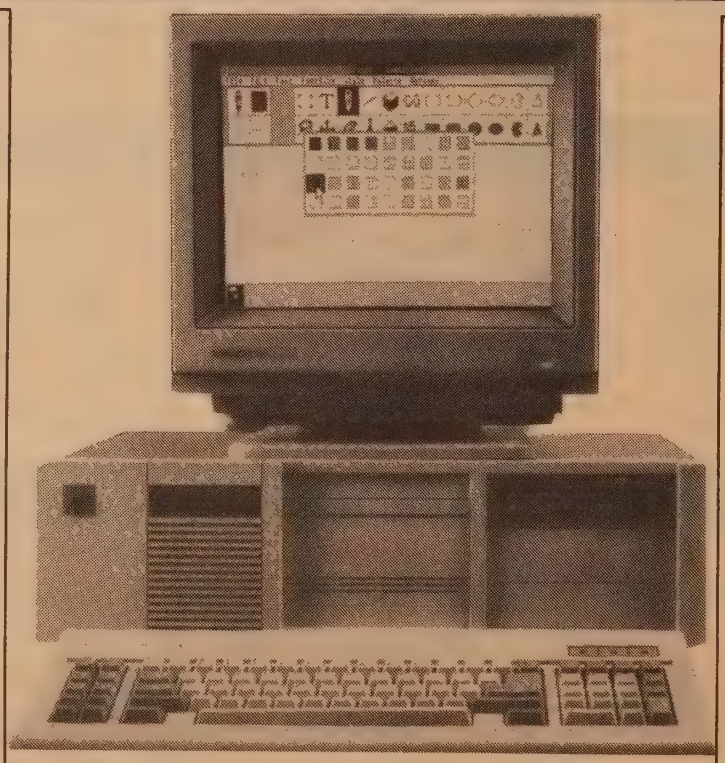

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Valley On-line Shopping Network. (818) 772-4227. 300/1200 (soon to be 2400). Provides local businesses the opportunity of selling their products on-line to local and national computer consumers. Sysop: BRAINS.

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Artificial Intelligence Special Interest Group (AISIG). Call Rita Zokaei, (415) 574-8225.

Association for Women in Computing. Meetings: 1st Wednesday of each month, 6:30 PM, Stagecoach Restaurant, 44 Montgomery St., San Francisco. Call 655-3110 for information.

BAY HPX. Meetings: 2nd Saturday Laptop & handhelds. Call Jim Horn or Michael Felsenstein: (707) 794-3130/(415) 564-8279.

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Bay Area Desktop Publishing User's Group. Meetings: Tues. 7-9 PM Norman's Restaurant, 2601 College Ave., Berkeley. For more info call Dr. C.J. Wallia at (415) 848-8200.

Baytalk Computer Users Group. Write: PO 369, Berkeley 94701. BBS: (415) 864-6430, 300/1200, 8-N-1.

Business Computerization User Group. Group forming. Write 6938 Buckingham Blvd., Berkeley, CA 94705, or call (415) 848-2080.

California Genealogical Society Computer Interest Group. Meetings: 2nd Sat.- odd months Genealogical Society Library, San Francisco.

COBOL And SQL Users Club Call: Dr. Badshah K. Mian, (415) 337-1787.

Computer Associates Users Group. Meetings: 3rd Wednesdays, 6:30 pm, 1500 Van Ness Ave., Call: Brenda Goldstein, (415) 864-6770.

Computers & Law Assoc. Meetings: McGeorge School of Law, 3200 Fifth Ave., Sacramento, CA 95817.

CYMA/McGraw-Hill Users Group Meeting. Meetings: Monday, October 24, 3:00-5:00 pm, McGraw-Hill Publications Building, 425 Battery St., San Francisco. Meet CYMA professionals and learn how to get the most from your software. Call: (415) 839-7466.

dbDVLPRS. Meetings: 2240 Buchanan, Ste. 5, San Francisco. Includes dBASE II, III, VI, Clipper, Foxbase, dBXL, Quicksilver and others. Call: Bruce Leandro, (415) 923-0659.

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East Bay User Group. Meetings: 3rd Wednesdays, 7 pm, 12500 Campus Dr., Oakland, Rm R-7, Call: (415) 436-2453.

Entrepreneurial Support Group. CEO. Meetings: SASE, P.O. Box 2781, San Rafael, CA.

Ham Radio Computer Packet Group. Meetings: 2nd Fridays, 8 pm, Salvation Army, 4600 Appian Way, El Sobrante. Learn how to use your computer to broadcast all over the world with the fascinating world of Ham Radio. Call: Bob Fields, (415) 237-3761.

High Tech Gays. Meetings: 2nd Sundays, Part of the National Gay & Lesbian Task Force. Call: (408) 993-3830.

High Technology Entrepreneurial Council. Meetings: Wednesdays, 6:30 pm, Piedmont Community Center, 711 Highland Ave., Piedmont. HTEC is a nonprofit corporation dedicated to providing software developers and other high tech entrepreneurs a forum for developing marketing strategies, building business relationships and exchanging experience and information. Call: Rachel Munoz, (415) 339-3895

MIDICRUZ Computer and Music Users. Meetings: 1st Thurs., 7:30 PM, 200 Seventh Ave., Suite 225, Santa Cruz, CA 95062. Contact Robert at (408) 476-8464.

MORE: Modemusers Of The Redwood Empire. Meetings: Thurs. July 14; Fri. Aug. 9; 7 PM, Roundtable Pizza, Highway 12 @ Stony Pt. Free membership for modemers who want to get together and talk about local boards. Includes novices to techno-wizards. Call (707) 546-5203.

Mt. Diablo Technology Association. First meeting: Wednesday, Sept. 14. Others monthly at Michael's Restaurant in Walnut Creek. Lunch and evening meetings, send for calendar. Back by popular demand. Will explore common concerns in industry and educational developments. Call: Deborah Scott, (415) 932-4828

Network Users Group (NUG). Next meeting: July 7. Call for location and time. Panel discussion of workgroup software with several major software manufacturers represented. Call (415) 655-6500 for details.

North Bay Users Group (NBUG). Meetings: 2nd Thurs. 7:30-10 PM 201 Maine St., Vallejo, CA. Family Computer Club dedicated to all forms of computing.Determine market opportunities, group research projects. (415) 564-6669.

Nota Bene User Group. Meetings: 3rd Tues. or Thurs., 7:30 PM Berkeley or Peninsula. For location and date, call Thomas Ross, (415) 845-2410.

PASS: Professional Association of Secratarial Services. Meetings: 2nd Saturdays 11:30 AM, Scott's Seafood, Jack London Square, Oakland.Call:Nina Feldman,(415)655-4296.

Prolog Forum. Meetings: Monthly, 2nd Thursday 7:00 PM, Belmont and various locations. Prolog Forum is a group dedicated to supporting users of the Prolog computer language in artificial intelligence. Call Mark A. Epperson at (415) 594-9981.

ProTel (Professionals In Telecommunications) Meetings: Monthly. Holiday Inn, 1221 Chess Drive, Foster City. ProTel is a network organization for people interested in telecommunications.Leave a message at (415) 227-5637 for information.

SEF Marketing SIG. Meetings: Oct. 27—Telemarketing; Nov. 29—Teknowledge, 1850 Embarcadero, Palo Alto. Call: Don Morrison, (415) 8328-0356

SEF OOP SIG. Meeting: Third Tues. 7 pm, Parc Place Systems, 2400 Geng Rd., Palo Alto. Call: Dean Ritz, (415) 859-1043.

SF Robotics Society. Meetings: 2nd Mon. Homestead Savings, Community Hall, 5757 Geary (at 22nd), SF. Guest speaker, developers' roundtable.

Silicon Valley Computer Society. Contact Kent Stafford (408) 286-2969. Or write to 2464 El Camino Real #190, Santa Clara, CA 95051.

Silicon Valley Techno—Musicians Network. Computers, MIDI, electronic/computer music, home studios, all experience levels, all computers, all musical styles welcome. Call: Bob, (408) 733-3429.

Society For Technical Communication. Meetings: 2nd Wednesdays, Berkeley. International association of technical writers, editors, illustrators, and instructional designers. Call: Rae Montor, (415) 531-2315.

Software Entrepreneur's Forum (SEF). Meetings: 3rd Thurs. 1875 Embarcadero Rd., Palo Alto. Helps individual software developers and startup software companies. Call for complimentary newsletter. (415) 854-7219.

Technology Executive Roundtable (TER) Meetings: Fourth Tuesdays, 6:00 pm, Santa Clara.Call: Jenny Hoyt,(408)997-1826.

The Hispanic Computing Association. Meetings: 3rd Thursdays, DataDesigns/American Music, 2388 Mission St., SF. Spanish/English Computer Information, PC & Mac presentations and solutions. Call: Juan Lira, (415) 824-8337.

The Society For Technical Communication. Meetings: 1st Wed. 7:00 PM Room #3, SMUD

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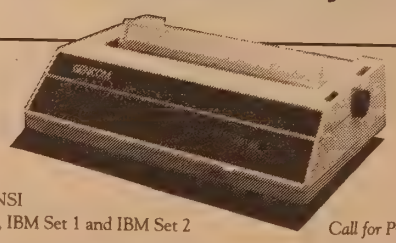

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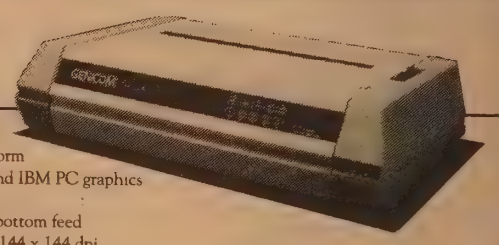

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Women's Special Interest Group. 7:30 pm, Hewlett-Packard, 5301 Stevens Creek Blvd., Santa Clara. For all women interested in computing. Call: Rita Zokaei, (415) 574-8225

USER GROUPS

AMIGA

ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues. 7:30 PM Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

Amiga Addicts Anonymous. Meetings: Newsletter, public domain library, demonstrations. Write PO 4669, Walnut Creek, CA 94596. Call: 689-3453

Amiga East Bay Info Exchange (AEBIE). Meetings: 2nd Tues. 7 to 9 PM 11185 San Pablo Ave., in El Cerrito. Write to P.O. Box 485, Pinole, CA 94564.

ASCITEC: The Amiga Science & Technology Users Group. Meetings: 2nd Thurs. 5-7 PM Lockheed, B/157, Rm. 4-C, Sunnyvale, CA. Scientific/Video Applications. Classes available.

AUGment - Amiga Users Group of Silicon Valley. Meetings: 2nd Fri. Write to P.O. Box 1863, Fremont CA 94538 for more info.

Bay Area Amiga Developers Group (BADGE). Meetings: 3rd Thurs. 8 PM Turing Auditorium, Stanford. University, Stanford, CA. For all Amiga programmers. No membership fee.

CWEST Bay Area Commodore Users Group. Meetings: Third Thursdays, 7:00 PM, EFort Mason, Bldg. C, Rm. 215. Support C-64/128 and Amiga. New Users welcome. Write PO 146731, San Francisco, CA 94114-6731.

Northern California Amiga Club. Meetings: Second Saturdays, 2 pm, Rico's. Supports Amiga. Write: PO 54, Bella Vista, CA 96008.

SMAUG (Salinas-Monterey Amiga Users Group). Meetings: 3rd Tues. at 7 PM, Seaside Library, 550 Harcourt Ave., Seaside, CA. Write PO 776, Castroville, CA 95012 for call Richard Binsacca at (408) 678-2518.

SVAUG-Scotts Valley Amiga Users Group. Meetings: 2nd Thursday, 7:00 PM. The Computer Room, Kings Village, Scotts Valley.

Vallejo AMiga People (VAMP). Meetings: 2nd Tues. 6:30 PM Software 1st, Vallejo Corners Shopping Center. Contact Bill Braun at (707) 554-0263.

AMSTRAD

North American Amstrad Users Group (NAAUG). National User group. For info send S.A.S.E. to NAAUG, P.O. Box 2178, Ferndale, WA 98240.

APL

APL Bay Area Users' Group. Meetings: 2nd Monday, 6:30 PM, I.P. Associates, 425 Sherman Ave., Suite 200, Palo Alto.

APPLE

A.P.P.L.E. Co-op. Meetings: National User Group. Call-A.P.P.L.E. Magazine. Write: 290 S.W. 43rd Street, Renton, WA 98055. Or call (206) 251-5222 for more info.

Apple Pickers of the Redwood Empire. Meetings: 2nd Sat. 10 AM Santa Rosa JC, Shuhaw Hall, Rm. 1735. Call for sample newsletter. (707) 763-8322.

B.E.A.R. Apple II National Users Group. Meetings: send S.A.S.E. to B.E.A.R., 4719 Meridean Ave. #401,San Jose 95118. Printshop & Appleworks files, monthly newsletter.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

GravenStein Apple IIGS Users Group. Meetings: 3rd Saturdays, 10:00 AM, Coddingtown Mall, Santa Rosa. User group to explore new and existing programs and uses for the IIGS, to order equipment and material as a group for quantity discounts and to encourage the use and development of the IIGS among current, new and potential users. Call: Aaron Lamar, president, 938-8479.

San Francisco Apple Core. Meetings: 3rd Saturdays, 10 am, Daly City Library, 40 Wembley. BBS, SIGS, PD/SW library, Help List, Newsletter, more. Call: 398-2335/771-5830.

San Leandro Apple User Group. Meetings: 1st Thursdays, San Leandro HS, Rm. 213. New owners to experienced users welcome. AppleWorks, software and telecommunications SIGs meet monthly. Call: (415) 483-6046.

Society For The Prevention Of Cruelty To Apples. Meetings: 2cnd Wednesdays, 7:30 pm, Fremont Main Library, 39770 Paseo Padre Pkwy. Call: Dean Fern, (415) 537-3439.

Tri Valley Apple II Users Group. Meetings: 1st Thurs. 6:30 PM. Call Esther Farnstrom at (415) 829-3672 or Dan Balsey at (415) 828-6237 for meeting location.

ATARI

ABACUS (Atari Bay Area Computer Users Society). Meetings: 1st Saturdays, 19th Ave. Diner, 19th & Lincoln Aves., SF. Open to all Atari XL/XE and ST users. $20/yr. Call: (415) 753-8483.

Bay Area Atari Users Group (BAAUG). Meetings: 1st Mon. 7:00 PM Bracher School, corner of Bowers and Chromite, Santa Clara. ST users meet at Bracher on 2nd Tuesdays. 8-bit users meet at H-P, Wolf and Pruneridge, Cupertino. BBS: (408) 247-1257.

COAST (California Original Atari ST Users Group). Meetings: 3rd Wednesdays, 7 pm, 2105 Bancroft, Berkeley. Call: (415) 945-1949.

San Leandro Computer Club. Meetings: 1st Tuesdays, 8 pm, San Leandro Community Library. BBS's: (415) 352-58118 & 7887-2008.

AT&T

Bay Area AT&T PC Users Group - South Bay. Meetings: 2nd Wed. 6:30 PM AT&T Bldg., 1090 E. Duane, Sunnyvale, CA. Call: Joe Lipsig (408) 733-6522. BBS: (408) 462-6329.

Bay Area AT&T PC Users Group. Meetings: 1st Wed. 6:30 PM Alternates between Oak. & SF, Call: Joe Mahoney (415) 586-8376. BBS: (415) 829-6027.

AUTOCAD

San Francisco/Marin AutoCAD Users Group. Meetings: 2nd Tuesday evenings. $20 annual membership fee & newsletter. For further info, call Volker, 331-9466, or Virginia 777-4025.

Sonoma County AutoCAD Users Group. Call (415) 777-9144 for info.

BLIND USERS GROUP

International Blind Users Group (I-BUG). As a member you will receive 6 issues of Compu-Help-On-Disk as well as your own ID and password to CompuHelp. $20/yr. Call: (916) 783-0364.

COMMODORE

ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues. 7:30 PM Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

Campbell Chapter of 64/More Commodore UG. Meetings: 4th Tues. BBS (408) 946-6154.

Commodore 64 Software Users Group For New Commodore Owners. One-on-one help for new owners. Meeting place & time TBA by members. Call (714) 531-2977 for info.

Commodore 64/128 User Group. A mail-based user group with monthly newsletter. Members communicate through newsletter. $10/yr. Vincent Poy, c/o Commodore Users Group, 895 Pacific Ave. Suite #638, San Francisco, CA 94133-4340.

Commodore Connection Users Group. BBS (415) 458-1005.

Commodore Users Group Santa Cruz. Meetings: 3rd Wednesdays, 2395 Delaware Ave., Santa Cruz. Call: Ruth Wieland, (408) 688-2843.

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Cupertino Chapter of 64/More Commodore UG. Meetings: 3rd. Sat.BBS (408) 946-6154.

CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs. Fort Mason, Bldg. C, Rm. 215.Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

Diablo Valley CUG. Meetings: 2nd Thurs. 7:30 1331 Concord Ave. For info write: Box 27155, Concord, CA 94527. Or call (415) 932-2413.

F.U.N.H.U.G. - Fremont, Union City, Newark, Hayward User Group. Meetings: 3rd Thurs. 7:30 PM Newark Public Library, 6300 Civic Terrace Ave., Newark, CA. A user-organized, user-operated user group not affiliated with any computer or software manufacturer or distributer.

Fairfield Commodore User Group. Meetings: 1st & 3rd Mon. Solano County Education Bldg. Write to P.O. Box 2778, Fairfield, CA 94533-9998 for info.

Marin Commodore Users Group. Meetings: 2nd Wednesdays, Redwood High. Call: 883-7748; BBS 883-2558—300/1200.

Mother Lode Commodore Users Group. Meetings: 2nd & 3rd Thursdays, 7:00 PM, Calaveras County Water District Board Room. Supports the Commodore PET, VIC, 64, Plus/4 C-16 & 128. Call: Larry Anderson, 754-5530.

North Valley Chapter of 64/More Commodore UG. Meetings: 2nd. Sat. BBS (408) 946-6154.

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally. Write to P.O. Box 1001, Monterey, CA 93942 for info.

San Jose Chapter of 64/More Commodore UG. Meetings: 1st. Sun. BBS (408) 946-6154.

Silicon Valley Commodore Club. Meetings: 4th Wed. 7 PM Hewlett-Packard, 5301 Stevens Creek at Lawrence & 280. C-64, C-128, & Amiga.

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dBASE Users Group of Marin & Northbay. Meetings: monthly, call (415) 488-0342 for info. Open membership, beginners through developers.

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DATAEASE

Bay Area DataEase Users Group. Meetings alternate between San Francisco and Palo Alto. Contact Kermit Carter at (415) 945-7817 for info.

DESKTOP PUBLISHING

Bay Area Desktop Publishing User's Group. Meetings: Tues. 7-9 PM Norman's Restaurant, 2601 College Ave., Berkeley. For more info call Dr. C.J. Wallia at (415) 848-8200.

Desktop Publishing SIG/GMUG. Meetings: 1st Tuesdays, 7 pm, San Francisco Business Times Building, 325 Fifth St., San Francisco. Call: 641-GMUG

Desktop Publishing SIG/SFPCUG. Meetings: 4th Tuesdays, 7:30 pm, 179 Parnassus Ave., SF. Call: Phil Smith, (415) 566-3648.

First Publisher User Group. Members make up 8 1/2 x11 formats for newsletters & tip sheets. $35 annual membership. Contact Raul Ibanez (415) 550-0785.

PC Publishers Of Northern California. Meetings: 2nd Thursdays, 7 PM, 1415 Valencia St., San Francisco Newsletter, telephone hotline, reference library, education. Support Ventura, PC PageMaker, etc. Intro membership: $$24/yr. Information: Al, (415) 661-9270 or Donna, (415) 826-6640.

San Francisco Desktop Publishing Users Group. A mail-based user group with monthly newsletter. Members communicate through newsletter. $20/yr. Vincent Poy, c/o San Francisco Desktop Publishing User Group, 895 Pacific Ave. Suite #638, San Francisco, CA 94133-4340.

San Francisco First Publisher Users Group. A mail-based user group with monthly newsletter. Members communicate through newsletter. $20/yr. Vincent Poy, c/o San Francisco First Publisher User Group, 895 Pacific Ave. Suite #638, San Francisco, CA 94133-4340.

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San Francisco Ventura Publisher Users Group. A mail-based user group with monthly newsletter. Members communicate through newsletter. $20/yr. Vincent Poy, c/o San Francisco Ventura Publisher User Group, 895 Pacific Ave. Suite #638, San Francisco, CA 94133-4340.

San Mateo Ventura Users' Group. Meetings: 2nd Mondays, 7:00-9:30 pm, 619 Bradford, Redwood City. Workshops, lectures, demonstrations of new techniques, shortcuts. Call: Eleanor Church, (415) 726-3181.

Ventura Desktop Publishing Users Group. Meeting: 1st Tuesday, 7-9:00 pm, 1650 S. Amphlett Blvd., San Mateo. Newly formed group. Call Eleanor Church at (415) 726-3181, or Pam Sheble at (415) 574-2003 for information.

VPUG (Ventura Publisher User Group)> Meetings: 3rd Mon. 6:30 pm Fort Mason, Bldg. A., Rm. 5 San Francisco, CA

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Easytrieve Plus Users Group. Next meeting: June 14, Hyatt Oakland. Call Debbie at Pansophic, (415) 573-7100. All users welcome.

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Epson Users of San Francisco Bay Area. Meetings: 1st Thurs. 7-10 PM Fort Mason, Bldg. C, Rm. 216, San Francisco, CA. For users of Epson (QX, Equity, PX-8). Presentations, support network, newsletter, public domain software.

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FORTH

Forth Interest Group of Silicon Valley. Meetings: 4th Sat. 1 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call George Shaw at (415) 276-5953 for info.

Forth Interest Group, North Bay Chapter. Meetings: 2nd Sat. 1 to 5 PM South Berkeley Community Library, corner of Russell and Martin Luther King Junior Way. One block north of Ashby BART station. Contact George Shaw (415) 276-5953.

FOXBASE+

FoxBase+ User Group. PO 20607 Oakland, CA 94620. New group now forming. Call Rachel Cohen, (415) 465-3570.

GAVILAN

Gavilan User Group. Meetings: 2nd Thurs. 7 PM Lockheed Bldg. 162. Cal (408) 379-2774 for info.

HEATH

Bay Area Heath User Group (BAHUG). Meetings: 2nd Tuesdays, 7 pm, 2001 Middlefield Rd., Redwood City. Call: Ed Hayes, (415) 326-3311.

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Hewlett Packard Deskjet Printer User Group. A mail-based user group with monthly newsletter. Members communicate through newsletter. $16/yr. Vincent Poy, c/o 895 Pacific Ave. Suite #638, San Francisco, CA 94133-4340.

HYPERCARD

HyperCard SIG/GMUG. Meetings: 2nd Wednesdays. 7 pm, 78 A Mars St., San Francisco. Call: 641-GMUG.

HyperCard SIG/SEF. Foothill College. Call for dates and time: David Gewirtz, 345-4620.

IBM AND COMPATIBLES

A New PC-CLONE CLUB. Meetings: 1st permanent meeting Oct. 7, 8 pm, Cal State Hayward, Rm. 2078, Meiklejohn Hall. Members with experience and large Public library. Call: (415) 538-2449.

Accounting SIG/SFPCUG. Meetings: 4th Mondays, 7 pm. 179 Parnassus Ave., San Francisco. Call: G. Watson, (415) 398-3587.

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Berkeley PC/Compatible User Group. Meetings: 2cnd Mondays, 7:00 pm, 2618 Telegraph Ave., Berkeley. No fee, bulletin board, public domain library. Call: Mel, (415) 526-4033.

C Language SIG/SFPCUG. Meetings: 2nd. Mondays, 7 pm, Kam's Rest., 2068 Center St., Berkeley. Call: Dan Baumbach, (415) 457-0729.

Clipper SIG/SFPCUG. Meetings: 4th Mondays, 7 pm, Rm. 1, Bldg. A, Fort Mason Center, SF. Call: Michael Palladino, (415) 751-2719.

Columbia SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Dennis Tye. (415) 566-0587.

CUE Club. MS-DOS machines. SIGs for other computers. BBS:(209) 239-9853. For more info call (209) 858-4401.

DataPerfect SIG/SFPCUG. Meetings: 2nd Mondays, 7 pm, Kam's Restaurant, 2068 Center St., Berkeley. Call: Christy Quinn (415) 644-1855.

dBase SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm, 6 No. San Pedro Rd., San Rafael. Call: John Stephenson, (415) 488-0342.

Desktop Publishing SIG/SFPCUG. Meetings: 4th Tuesdays, 7:30 pm, 179 Parnassus Ave., SF. Call: Phil Smith, (415) 566-3648.

Diablo Valley PC Users Group. Meetings: Walnut Creek, CA. Write: P.O. Box 8040, #117, Walnut Creek, CA 94596.

East Bay Fog. Meetings: Monthly meetings, Apostleship of the Sea, 600 Terminal St., Oakland. Newsletter, BBS. Call (415) 272-9099 for more info.

Enable SIG/SFPCUG. Meetings: 2nd Wednesdays, 7:30 pm, Walnut Creek. Call: Sandi Baker, (415) 946-1716.

Financial SW SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Rm. 1, Bldg. A, Fort Mason Center, SF. Call: Nick Maffei, (415) 668-2456.

FUNHUG—PC. Meetings: 3rd Wednesdays, 7:30 pm, Fremont Library, 39770 Paseo Padre Parkway, Fremont, in the Meeting Room. Mainly just the MS and PC DOS world. Send SASE to Russ Fischer, 2792 Arlington Place, Fremont 94555.

IBM & Compatibles Users Group (ICUG). Meetings: A mail-based user group with possible meetings. Not for PCjrs. $8/yr. Write: Dan Tuma, 30 Arjang Ct., Alamo, CA 94507-2041.

IBM Compatible Users Group. Meetings: monthly, call (415) 969-6916 for info 7-10 PM.

IBM PC & Compatibles Users Group. A mail-based user group with monthly newsletter. Members communicate through newsletter. $10/yr. Vincent Poy, c/o IBM PC & Compatibles User Group, 895 Pacific Ave. Suite #638, San Francisco, CA 94133-4340.

IBM PC Users' Group Of The Redwoods (PCUGR). Meetings: 2nd Thursdays, 7 pm, Santa Rosa Vets Memorial, East Dining Rm. Newsletter, BBS, public domain & shareware disk library, $25/yr. Call: (707) 527-USER.

IBM Technical SIG/SEF. Teknowledge. Call for dates and time. Call: Mike Schmit, 244-6826.

Kay+Fun Peninsula Computer Club. Meetings: 2nd Thursdays, 7:30 PM. Social Room, 222 Laurel St., San Carlos. CP/M + DOS library. BBS: (415) 572-8219.wCall: 593-9981.

Lotus SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Jerry Stern, (415) 282-4100.

Marin-Sonoma PC Users Group (MSPCUG). Meetings: Last Tuesdays, Tamalpais Ave. & 3rd Ave., San Rafael Whistlestop Bldg. Call: (415) HAWK.

Mid-Peninsula IBM-Club. For IBM employees only. Call Scott Maiden for info: (415) 855-4509.

Modula-2 SIG/SFPCUG. Meetings: 3rd Thursdays, 7:30 pm, Call: Richard Lesnick, (415) 398-3587.

NewViews SIG/SFPCUG. Meetings: 4th Mondays, 7 pm, 179 Parnassus Ave., SF. Call: G. Watson, (415) 398-3587.

OtherPerfect SIG/SFPCUG. Meetings: 2nd Mondays, 7 pm, Kam's Restaurant, 2068 Center St., Berkeley. Call: Quisty Quinn, (415) 644-1855.

Paradox SIG/SFPCUG. Meetings: 4th Wednesdays. Call: Allen Greenkey. (415) 621-8478.

PC Clubhouse. Meetings: 1st Fridays, 8 pm, Cal State Hayward, Rm. 2078, Heiklejohn Hall. 2000 disk public library, expert help, software/hardware demos, $24/yr. Call: (415) 538-2449 or 846-3575.

PC UNIX SIG. Meetings: 1st Wednesdays, 7 pm, AT&T Training Center, 1090 E. Duane Ave., Sunnyvale. Learn more about such UNIX versions as Microport, XENIX and Minix. Starting a library of public domain source code.. Call: Dan Kionka, (408) 432-1300.

Sacramento PC User Group. Meetings: For information call Jackie Janssen at (916) 383-6900.

San Francisco Computer Society. Meetings: 1st Mon. 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne. Kaypro, Morrow. Call Ralph Gallagher 929-0252.

San Francisco PC Users Group. Meetings: 3rd Mondays, 8 pm, Rm. 1, Bldg. A, Fort Mason Center, SF. Call: (415) 221-9166. BBS: (415) 621-2609.

San Francisco PCjr Users Group (SFPCjrUG). Meetings: First Sundays. 7:30 PM, Homestead Savings, 22nd Ave./ Geary, San Francisco. Demonstrations and discussions, club library, disks for sale. Call: John King, 472-7035

Santa Cruz Computer Society. Meetings: 3rd Thursdays. 7 PM, Santa Cruz County Office of Education, 809 Bay Avenue, Suite H, Capitola. Call: 479-1180.

Silicon Valley Computer Society. Meetings: 4th Wed. 7:30 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call Kent Stafford for info at (408) 286-2969.

Silicon Valley FOG. Meetings: 3rd. Wed. 7:30 PM Saratoga Community Library, 13650 Saratoga Ave.

Solano Community PC Users Group. Meetings: 3rd Monday, 7 PM, Fairfield High School.

Solomon User Group Of Silicon Valley. Meetings: Wednesday, August 10, 6:30 PM, Conveyor And Storage Dynamics, 2581 Leghorn St., Mt. View. Call Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark, CA 94560; (415) 659-1515.

South Bay AT&T PC UG. Meetings: Call for info. Call (408) 226-0116

South Bay WordPerfect User Group. Meetings: Monthly, 13650 Saratoga Ave., Saratoga. Call: Martin Van Derpool, (408) 238-8434.

South County PC Users Group. Meetings: Round Table Pizza Restaurant, 22457 Foothill Blvd., Hayward. Call: R.A.McCloud, (415) 537-9899.

Teachers SIG/SFPCUG. Meetings: 3rd Mondays, 7:30 pm, Chancellor's Conf. Rm., UCSF, 3333 California St., SF. Call: Margaret Gwathmey, (415) 982-4221.

TRS Nybblers. Meetings: 2nd Friday. 8 PM, Chabot College, 2555 Hesperian Blvd., Rm. 600, Hayward. MS/DOS, CP/M, laptops. CoCo's, Mod 1, 3, 4; Mod 2, 12 16. 6000. PD software education modules, problem solving committee.

Valley Computer Club IBM PC Users Group. Meetings: 3rd Wed. 6 PM Xerox Bldg. 475 Oakmead Pky, Sunnyvale, CA. $24/yr member. Monthly VPUG News, access rights to VPUG-SIG. Advice on desktop pub. techniques, new products, bugs. etc.

WordPerfect SIG/SFPCUG. Meetings: 3rd Mondays, 7 pm, Chancellor's Conf. Rm., UCSF. 3333 California St., SF. Call: Debbie Foster. (415) 285-4534.

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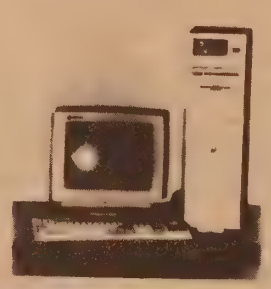

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► Saturday 3/25
Santa Clara Computer Show & Sale
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San Francisco Computer Society. Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

MACINTOSH

Bay Area MacForum. Meetings: 3rd Saturdays, noon, Daly City Library, 40 Wembeley. BBS, SIGS, PD/SW library, Help List, Newsletter, Newcomers Meeting, more. Call: (415) 771-5830/ 398-2335.

Berkeley Macintosh User Group (BMUG). Meetings: every Thurs. 6 PM Physical Sciences Lecture Hall, UC Berkeley Campus. SIG meetings on Mondays, Tuesdays & Wednesdays. Call for this week's topic. (415) 849-9114. BMUG, 1442A Walnut St., #62, Berkeley, CA 94709.

Christian Macintosh User Group, San Francisco Chapter. Meetings: 2nd Thurs. San Francisco. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913. Bible Study and DTP SIGS.

Christian Macintosh User Group, Silicon Valley Chapter. Meetings: 1st Thurs. San Jose. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913.

Desktop Publishing SIG/ GMUG. Meetings: 1st Tuesdays, 7 pm, San Francisco Business Times Building, 325 Fifth St., San Francisco. Call: 641-GMUG

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

EBMUG (East Bay Macintosh Users Group). Meetings: 3rd Tuesdays, 7:30 pm, 724 Allston Way (@4th) near University Ave., Berkeley. Members receive free PD software. Bring blank disk. Meetings open to everyone. Call: Terry Pennington, (415) 486-0147.

GMUG (San Francisco's Macintosh User Group for Gays and Lesbians). Meetings: 3rd Wednesdays, 7 pm, UC-Berkeley Extension Annex, 1930 Market St., Rm., #2G. Call: 641-GMUG

HyperCard SIG/GMUG. Meetings: 7 pm, 78 A Mars St., San Francisco. Call: 641-GMUG

Mac Diablo Users Group (MDUG). Meetings: 3rd Tues., Community Room, Glendale Federal Savings, 3101 Crow Canyon Road, San Ramon.

MacCruisers — Santa Cruz. Meetings: 2nd Wed. Jade Street Community Ctr. at 45th Ave., Capitola, CA.

Macintosh SIG/SEF. Apple Cafeteria. Call for dates and time. Tony Meadow, 644-9400.

Macintosh Users Of ComputerWare (MUCoW). Meetings: 2cnd & 4th Wednesdays, 7:00 pm, Above ComputerWare store, 490 California Ave., Palo Alto. Call: (415) 496-1051 or 496-1033.

MacNexus — Sacramento's Macintosh Users Group. Meetings: 3rd Thurs. 6:30 PM Call (916) 446-2411 for info. 350 members, but still informal. Extensive public domain collection.

Macs Of Marin (MOM). Meetings: 2nd Thursdays, 7 pm, Redwood High School, 395 Doherty, Larkspur. Call: Steve Salzman, 459-5707.

Silicon Valley Computer Society's Macintosh SIG. First meeting: September 21, 7:30 pm, 6th floor offices of Arthur Young and Co., Mitsubishi/Plaza Bank Building, 55 Almaden Blvd., San Jose. A forum for shared ideas. First meeting will be a demonstration of HyperCard. Other demos are planned for future meetings. Call: Dennis Dawson, (408) 947-5550.

Stanford Macintosh Users' Group (SMUG). Stanford community membership: $25; public membership: $35 per year. Call: 723-SMUG. BBS: (415) 723-7685.

TI-West Meetings: 2nd Fri. 8 PM Chabot College, Rm. 600, 25555 Hesperian Blvd., Hayward, CA. Access to a variety of pub. domain software, education modules "problem solving" peripheral committee.

Tri-Valley Macintosh User's Group (TMUG). Meetings: 1st Thursdays, 7 pm, 4695 Chabot Dr., Rm 114, Hacienda Business Park, Pleasanton. Newsletter, large P/D library. Call: James (415) 426-8756 eves, Mike, (415) 838-6165.

MICROSOFT

Mac Diablo Users Group (MDUG). Meetings: 3rd Tuesday, 7:30 PM, Community Room, Glendale Federal Savings, 3101 E. Crow Canyon Rd., San Ramon. Small, helpful group.

Microsoft Flight Simulator Users Group. A mail-based user group with monthly newsletter. Members communicate through newsletter. $15/yr. Vincent Poy, c/o Microsoft Flight Simulator User Group, 895 Pacific Ave. Suite #638, San Francisco, CA 94133-4340.

Microsoft Word Users Group. Meetings: 4th Mondays, 7:30 PM - 9:30 PM, Hewlett Packard-Cupertino-Oak Room Bldg., 48 Pruneridge, 100 yds. est of Wolfe off Hwy 280. August 22: Chris Donner, Pres. Access Softek on DRAGNET for Text Retrieval and Management. Call: Bill West, 356-8805.

Mirosoft Word SIG of the SVCS. Meetings: 4th Mon. 7:30 PM Hewlett—Packard, Oak Room, Pruneridge at Wolfe, Cupertino. Contact Bill West (408) 356-8805 or Hunter Jackson (4080 446- 4097.

MINDSET

San Francisco Mindset Users Group. Call: (415) 626-4240.

MORROW

BAMDUA (Bay Area Micro Decision Users Assoc.). Meetings: 3rd Tues. 7:30 PM Albany Senior Center,846 Masonic Street (just north of Solano) in Albany, CA. Voice:(415) 534-4257. BBS:(415) 654-3882. P.O. Box 5152 Berkeley CA 94705.

San Francisco Computer Society. Meetings: 1st Mon. 7:00 PM. Homestead S&L, 5757 Geary Blvd., San Francisco. MS-DOS machines, Osborne, Kaypro, Morrow. Call Ralph Gallagher 929-0252.

NEC

Bay Area NEC/100 Users Group. Meetings: 1st and 3rd Thur. 7:30 PM Room 209C at College of Alameda. For those interested in laptops, especially Kyocera 80C85 type (NEC 8201a, Radio Shack Model 100 or 102. Call (415) 658-1889.

NOVELL

Novell Users Group. Meetings: Third Wednesdays, 6:30 pm, Coco's restaurant, 1305 South Mary, Sunnyvale. Newsletter, bulletin board, product demos, assistance for beginners. Call: Bill Strouse, 998-8821.

ORACLE

Northern California Oracle UG. Meetings: Call (408) 738- 8330 for info. Meets every 3 months at different Bay Area locations. Newsletter published between meetings.

OSBORNE

San Francisco Computer Society. Meetings: 1st Monday, 7:00 PM, Homestead S&L, 5757 Geary Blvd., San Francisco. CP\M and DOS machines. No BBS. Call Ralph Gallagher, (415) 929-0252 for information.

PARADOX

San Francisco Paradox Users Group. Meetings: 3rd Wednesday, call Jeffrey Edwards Co. for information, (415) 543-6227.

San Francisco Paradox Users Group, South Bay Chapter. Meetings: 3rd Tuesday, call Jeffrey Edwards Co. for information, (415) 543-6227.

TANDY/RADIO SHACK

BYTE Bandits of America. Meetings: Campbell. Call (408) 379-2774 for info.

CoCoByte. Meetings: Last Saturdays, 2 pm-4 pm. Supporting the Tandy Color Computer 11,2 or 3 with Spanish, English & French software. Write to: CoCoByte, c/o Fabian Rodriguez, A.A. 5976, Cali-COLOMBIA.

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Tandy 1000 (The Mug). Mail-based user group w/ monthly newsletter. Not for PC jrs. Members communicate through newsletter. $8/yr. fee; checks to: Daniel Tuma, 30 Arjang Ct., Alamo, CA 94507-2041.

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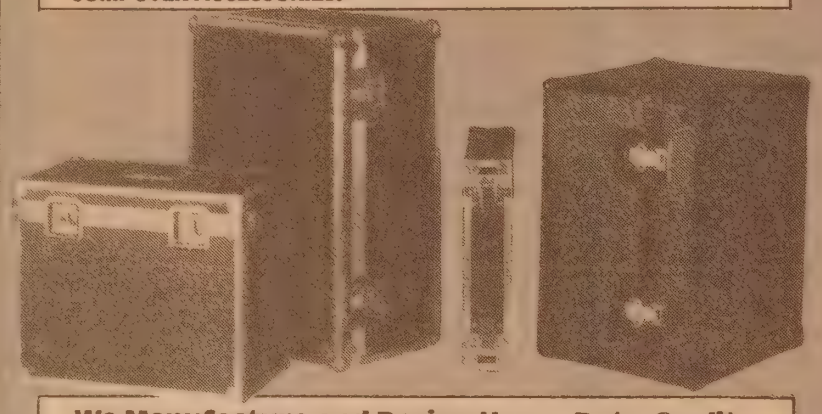

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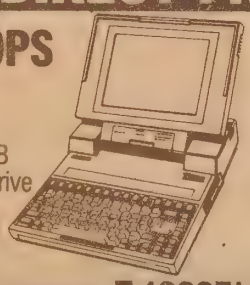

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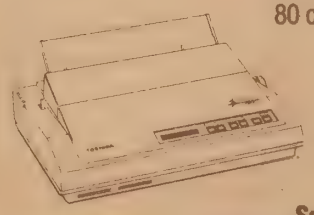

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TRS Nybblers. Meetings: 2nd Fri. 8 PM Chabot College, 25555 Hesperian Blvd., Hayward. MS-DOS, CP/M, laptops, Mod 1, 3, 4, Mod 2, 12, 16, 6000. Bud Gallagher (415) 522-5960 or Bruce Jarvis (415) 846-3575.

REVELATION

Bay Area Revelation UG. Meetings: 1st Tues. Call (415) 759-1210.

SANYO

Sanyo PC Hackers. Meetings: 1st Wed. 7 PM Mercury Room, Mercury Savings & Loan, 99 El Camino Real, Menlo Park.

SOLOMON

San Francisco Solomon III Users Group. Meetings: last Wed.,odd months 6-9 PM Price Waterhouse, 555 California St. 36th Fl., San Francisco. Annual membership - $50; corp. membership - $75.

Solomon User Group of Silicon Valley. Meetings: For info contact Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark CA 94560.

S—100

S—100 Business Users Group. Meetings: 4th Tues. 7:30 PM Santa Clara Univ., Rm. 101, Bannan Engineering Bldg. CP/M & MS-DOS libraries. BBS: (408) 262-5150, 8-N-1,2400/1200/300.

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TEXAS INSTRUMENTS

Bay Cities User Group. Meetings: 1st, 3rd, 5th Wednesdays, 7:30 pm, 1637 Morgan, Mt. View. Call: Jack, (415) 964-4344.

Brea 99'ers Users Group. Meetings: 1st Mon. 7:30 PM Mercury Savings, La Habra, CA.

San Francisco 99ers. Meetings: 3rd Saturdays, 3751 Elston Ave. Call: Fred, (415) 530-8335.

Thousand Oaks Personal Computer Club (TOPCC). Meetings: monthly. Call: (714) 686-0336.

TIMEX/SINCLAIR

Timex Sinclair East Bay Z80 Users Group (TSEBZUG). John Ezike, (415) 843-5507.

Timex Sinclair Peninsula Users Group (TSPUG). Contact George Mockridge, (408) 878-1773.

Timex/Sinclair Users of Silicon Valley (GUTS/SV). Meetings: each Sat. 9 AM Stanford Univ., Jordan Hall (quadrangle), Math Bldg. RM 380C. SW library & newsletter. For topic check PDSE BBS in Sunnyvale (408) 735-7390, 300/1200, 8-N-1, 24 hrs.

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San Mateo Ventura Users' Group. Meetings: 2nd Mondays, 7:00-9:30 pm, 619 Bradford, Redwood City. Workshops, lectures, demonstrations of new techniques, shortcuts. Call: Eleanor Church, (415) 726-3181.

Ventura Desktop Publishing Users Group. Meeting: 1st Tuesday, 7-9:00 pm, 1650 S. Amphlett Blvd., San Mateo. Newly formed group. Call Eleanor Church at (415) 726-3181, or Pam Shebie at (415) 574-2003 for information.

VPUG (Ventura Publisher User Group) Meetings: 3rd Mon. 6:30 pm Fort Mason, Bldg. A., Rm. 5 San Francisco, CA

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(Please limit descriptions to 15 words or less.)

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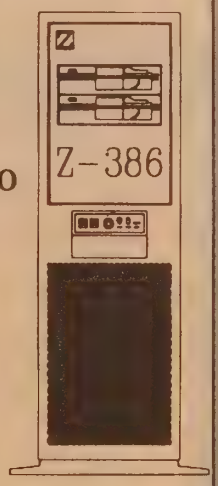

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Continued from page 96

mation you need, mark it off, and then shrink the window and enter into a different document. This is extremely useful for researchers, which may account for the disproportionately large number of lawyers using the program.

Another toggle allows you to take advantage of a 43-line option on the EGA card, a great help with crowded multiple-window screens. I really like this feature, as I do not like to use the 43-line display all the time.

New York Word also features a flexible macro facility. You can create on-the-fly macros that will be retained just for a session or macros that can be called up any time. Another alternative is a macro file, which can be loaded into any document. *New York Word* attaches the macros to the document when you save it. So, unique macros for expressions or terms in a particular writing project can be saved with the documents for the project. The one limitation of the macro facility is that it is difficult to program system calls to bring up things like the current date, although it is possible to do this manually by pressing <alt>d.

If you like *New York Word* well enough to send in the registration fee, you will receive a user's manual as well as a powerful mail merge program and a multicolumn program that round out the *New York Word* package. *NYW* requires an IBM/Compatible with a minimum of 256K RAM. A hard disk is strongly recommended.

Drawbacks?

So what are the drawbacks? Why doesn't the whole world move over to *NYW*? Certainly the program is worth every penny that the author asks from users, but right now this is not yet the word processor for everyone.

The first major limitation is the documentation. The manual, while greatly improved from earlier editions, is still not up to professional standards. Several other manuals as well as an on-disk tutorial are available from third parties. Recently a *NYW* user group has formed, and a newsletter is available. So there is no lack of support.

A second limitation is printer driver configuration. Unless you use one of the eight printers for which drivers are provided, you will be forced to create a driver using the furnished skeleton.prt file or convert a driver from *PC-Write*, using a simple public domain program which can be downloaded from many bulletin boards. This handy utility allows the hundreds of drivers available for *PC-Write* to work with *New York Word*. Perhaps in a future release *New York Word* will include drivers for all of the printers supported by *PC-Write*.

But my most severe criticism of the program is that there are still too many bugs. In playing around with the program, I have had the computer lock up. And although most things work as they should, I still find minor annoyances. One of the paragraph reformatting options, for instance, is off a column. In an expensive commercial program these bugs would be unacceptable.

Finally, I did not like the fact that even if you set the program for double spacing, this will not be reflected on the screen display. The author did this intentionally, but I find certain times when I want my display to also be double- or triple-spaced.

When weighed against the speed, power, and flexibility of the program, these limitations are nothing more than minor inconveniences. While I hesitate to recommend this program to everyone, it is fully recommended to the more adventuresome who want a powerful program and are willing to put in the time and effort required to get it configured for their computers and printers. The registration fee allows you to receive updates, so presumably your initial investment will entitle you to a lifetime of improvements to an already impressive program. (*New York Word*, $44.95 plus $2.00 shipping. Marc Adler, 138-23 Hoover Avenue, Jamaica, NY 11435, 201/376-0955.) ■

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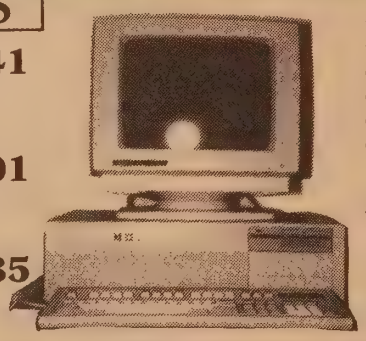

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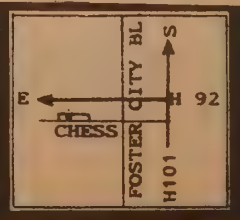

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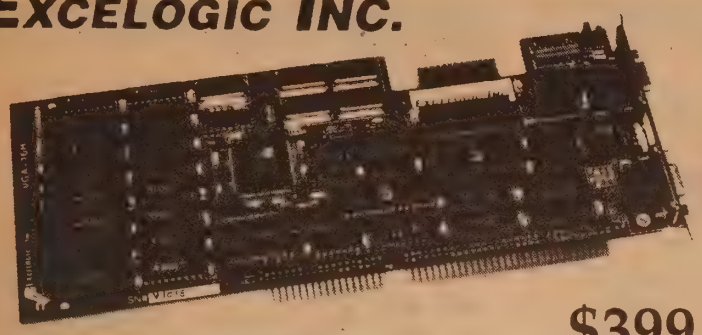

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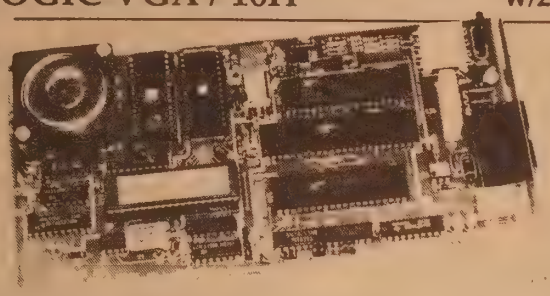

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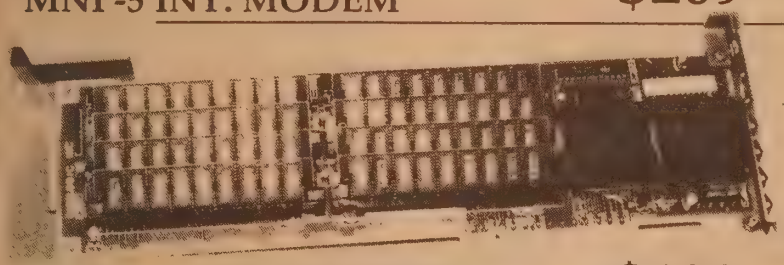

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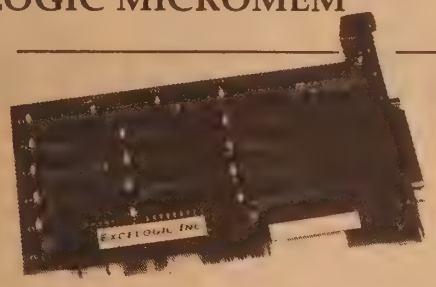

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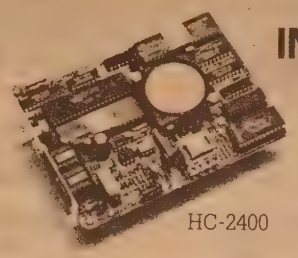

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DVORAK'S LAST COLUMN • BY JOHN C. DVORAK

I Can't Throw Anything Away Anymore

Dvorak's IN Basket Revealed

Over the years I collect a basket full of snippets and items that I intend to use but which somehow become dated or forgotten. I keep these items in little computer files and always promise to toss them out when they get too old. When I read them I decide they are too good to discard. Until now I haven't found a use for any of the following items:

***

Memo From Paul Hoffman

Subject: Annals of computer junk mail

You can tell that there is a drug problem in the advertising industry. On the outside of a piece of junk mail from *UNIX Today*: "Introducing a newspaper as exciting as the market it covers!"

***

Memo from An Anonymous Source

Subject: Borland Rumors

John, Total rumor: Borland is an acquisition candidate. Rumor level rumor is that Microsoft is interested.

And cows can fly!! —JCD

***

Letter From Joe

John,

I just read your column in the Vol8N2 *PC Magazine* issue about the shabby treatment IBM gave you, and feel I can now mention something one of our IBM Field Engineers told me about a month or two ago.

Seems in their efforts to cut costs (gotta keep that "no layoff" policy alive!), IBM put out the word to all its field people that if they wished to take a client to lunch, or pick up any expenses, they were on their own—IBM would no longer reimburse them! They would just have to take it off their taxes as a business expense at the end of the year.

Sad—IBM's strength was always its marketing, and it seems to have forgotten even how to do that right.

***

Doug Ruby On Networks

John, after 3 years of IBM mainframe software development, 7 years at DEC, and now 5 years working for LAN vendors, I have a couple more little aphorisms for your favorite network sayings:

1. The first law of networks....They always grow.

2. The second law of networks....They don't work.....Unless you plan them to.

3. The third law of networks....If you don't pay attention to the first two...you are in deep <expletive deleted>.

Having been a practitioner, I find myself being consistently more skeptical about the general nature of vaporware in the PC industry (LANs included) in general. I think your hostility is healthy, but misplaced when you are trying to get an organization to work together instead of being an anarchy.

***

IS THIS CORRECT?

Federated opens up a 2800+ square foot computer department in its Hollywood store (LaBrea & Sunset). It has Atari 520STFM, 1040STF, Mega, and 8-bitters; PC-compatibles (a PC, a turbo XT, a 286); Atari, Nintendo, and Sega games. It has lots of computer books—more titles than B. Dalton at prices 10% below Crown books. There's a big selection of PC software and a huge selection of Atari software—and a Special Order Desk will find and get any piece of anybody's software on request, by name or by description, an absolute WILDCARD. On display: Work Center clusters (Learning Center, Desktop Publishing Center, Graphics Center, Music Center) with complete, working systems at each of three levels of sophistication in each cluster. Also on hand: peripherals, accessories, the works. There's also a gonzo games area, and a Home Office Center complete with copiers, FAX, phones, answering machines, more.

***

J. Alan Rueckgauer sez:

People may be belly-aching, but not because of indigestion...

The problem is the politics involved. I'm an ex-IBMer, and understand the inner-workings quite well. In a nutshell, the IBM Modus Operandi is to create markets for products, then do-in the competition by simply abandoning it. Any competitor that is capable of it merely follows IBM's lead. The rest just struggle in the aftermarket or die.

The whole issue of IBM killing off the PC market is something very subtle. You have to be able to read into the motives behind any marketing move, be it an ad campaign or a product line. MCA is one of the warning signs that IBM's got a fast move in the making, and tripping-up the competition is the end result. They're the real reason that third-party support for PS/2 isn't where it was for the PC in a comparable point in the life cycle. They make a big deal about how wonderful MCA is, then come out with another model based on the AT (albeit crippled). Some people say "Gee, MCA must not be so hot, so we'll stick with the old way of doing things." Others are stifled by the licensing issues of MCA. And, just *why* do they have to have the Extended Edition of OS/2? Why did they suddenly make a big move towards putting connectivity with their heavy iron when there are already enough ways of stringing PCs off a mainframe? Why the dramatic shift towards SAA?

The answer is relatively simple: they want people hooked-up to their mainframes. They've learned quite a bit about interface techniques from seeing what works on the PC. The Database Manager in EE is not really intended for applications on the user side, but for interaction with the mainframes. Everything about their "bigger picture", says "workstation" instead of personal computing. Connectivity is suddenly an issue, and IBM wants to make absolutely sure you're connecting to *them* and not Wang or DEC or anyone else.

The intent is to leave the people who could care less about hooking up to heavy iron off in the hinterlands where they belong. They're not going to generate any significant revenue. It's their choice to stay with the old technology if it suits them. However, if you're part of the corporate world with your mondo data center and have to justify your spot on the org chart, you have to demonstrate the company can't afford to exist without you. How would you justify a million dollars a year or more in hardware and staffing expenses if all you're doing is payroll and accounting or acting as a library, especially if even the accounting department has put in PCs to do their spreadsheets and taken all that analytical work off the mainframe (and the corresponding workload)?

The only way IBM will retain its dominance in the world is to keep selling heavy iron. To do that, you need a way to sell it. Every one of my clients (most of them in the Fortune 100) have dramatically cut their MIS budgets because of PCs. If IBM can find a way to make the PC environment hostile to the average person, they have no alternative but to turn to the very people they've managed to turn their backs on. Give a Director of MIS a backlog that will justify him buying new machines, new software and hiring more programmers, and corp. management is going to look at what to cut to accommodate it, and it'll be the PCs, since everyone has to go to MIS for solutions.

Maybe I'm being cynical, but someone's putting the writing on the wall.

***

Now He Tells Me!

Dear John:

Let me tell you how much I've enjoyed your articles in *InfoWorld* and now *PC Magazine*. In fact, when you moved to your present professional residence, I let my *InfoWorld* subscription expire as, in my estimation, you were the only credible voice there. (They totally butchered a letter I wrote and twisted its meaning before publishing it. When I called and spoke to the woman who edited the letters section, she very rudely hung up on me when I complained.)

—Tony Stalls

John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine *and* MacUser, *considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.*

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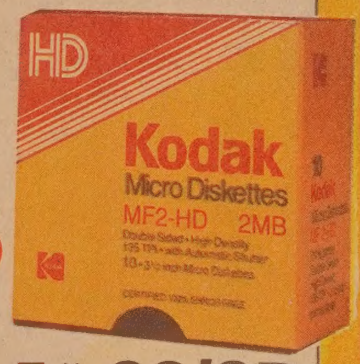

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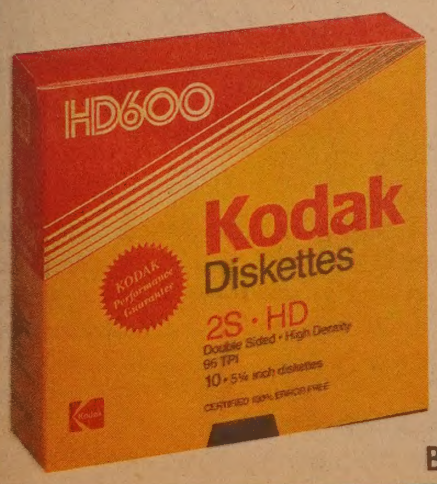

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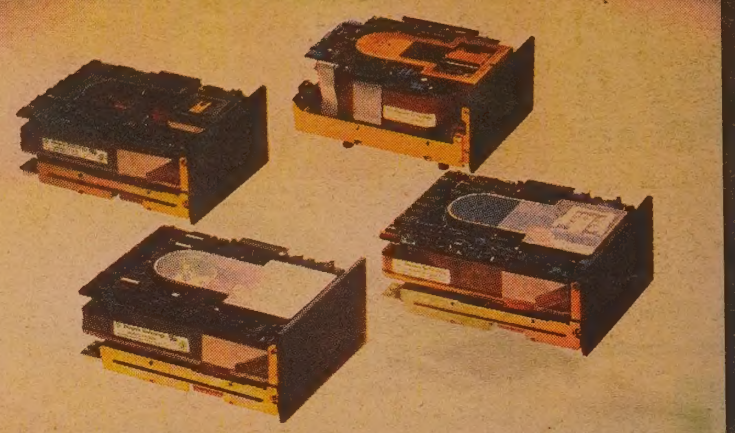

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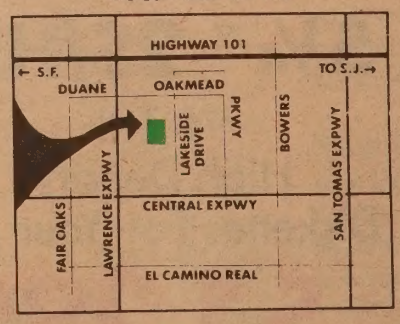

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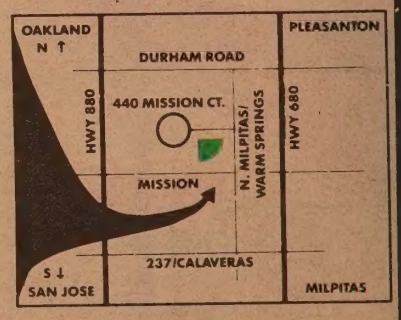

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